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ABSTRACT

A project designed and demonstrated a career guidance model for academically gifted female students to overcome problems associated with non-traditional career choices and sex-role stereotyping. Academically gifted females were identified in grades 6 and 10-12. Parent involvement was actively solicited to facilitate non-traditional career decisions. Student training and information activities included (1) Creative Life Planning Seminar for senior girls, (2) Career Information Newsletter for grades 9-12, (3) Advertising Club Workshop, (4) Grade 9 home arts instructional unit, (5) Multiplying Options workshop for secondary math and science teachers, (6) school representatives workshops, (7) workshop to acquaint staff with useful community programs, (8) Occupational Choices and Lifestyles staff workshop, and (9) distribution of printed materials on sex stereotyping to teachers and counselors. Evaluation activities assessed if people affected by the project saw a need for kinds of activities sponsored by the project and if target populations perceived project activities as useful. Data was collected from student, parent, district staff, and project activity assessment instruments and record data. The project was found to be effective despite school staff constraints. (Appendixes, amounting to approximately one-half of the report, include the semi-annual report, printed materials distributed to teachers and counselors, and Creative Life Planning Seminar materials.) (YLB)

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FINAL REPORT

Project No. 3544H80635
Grant No. G00-7-80-2034

Career Guidance for Academically Gifted Female Students: A Coordination of Resources to Develop Human Potential

Frances Jackson

Great Falls Public Schools
1100 Fourth Street South
Great Falls, Montana 59401

September 29, 1980

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Reporting Period

This reporting period extends from
October 1, 1978 to September 30, 1979

Frances Jackson
Signature of Project Director

September 30, 1980
Date

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SUMMARY OF THE REPORT

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I. SUMMARY OF THE REPORT

A. Time Period Covered By This Report

September 1, 1978 to August 31, 1979

B. Goals Of The Project

1. Students

a. Become aware of career fields which enable them to achieve their potential and where employment opportunities are good.

b. Will enroll in courses which further their pursuit of prestigious careers.

c. Will interact closely with appropriate role models.

2. Parents

a. Will become actively involved in the academic and career planning of their children.

3. Staff

a. Will screen materials for use in district media centers.

b. Will know about and use effective strategies for counteracting overt and covert sex biases.

c. Will use established procedures for providing the different services developed by the project.

C. Accomplishments

1. Conducted a variety of training sessions for students and staff.

2. Established a coordinating liaison with a variety of community resources.

3. Caused parents and district staff to manifest a greater awareness and sensitivity to the problem addressed.

4. Added appropriate curriculum materials to the district media program.

D. Evaluation Findings

The project generally met or exceeded all expectations despite a very short duration and the complexity of the problem addressed.

School staff are a major constraint to attainment of project goals.

E. Conclusions and Recommendations

1. Conclusion

   a. Differentiated career explorations is essential for providing necessary student experiences.

   b. Staff and administrative support are essential pre-conditions to achieving desired forms of change.

   c. Projects of this type are too short and too poorly funded to have a significant effect on the problems.

2. Recommendation

   a. That the Federal Department of Education demonstrate more and better leadership.

   b. That a large scale program of research be initiated to identify important predictors.

   c. That the project be continued for at least two years.

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BODY OF THE REPORT

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II. BODY OF THE REPORT

A. Accomplishments

1. Background

A variety of data gathered by the Great Falls Public Schools all indicated that the situation with respect to female career decision-making was similar to the experience of other schools around the nation. The proposal succinctly summarized the problem (p. 9):

> "To continue to urge our brightest female students to pursue college degrees only because they have academic ability is to perpetrate the errors of the past decade. Possession of a degree in areas which have limited potential for employment and success is to doom many of them to the frustration of unused talents, the lack of prestige or esteem in a chosen field, or the financial burden of obtaining alternative training. A further problem for gifted females is their lack of preparation for entry into such high employment career fields as engineering, architecture, law and medicine."

The project planned to systematically address the problem through six stages. These were:

(a) Identification

(b) Differentiation

(c) Implementation

(d) Accommodation

(e) Evaluation

(f) Integration

This developmental taxonomy would yield necessary definitions for identifying participants, selecting resources and ultimately culminating in changed attitudes which would lead to full integration of successful components.

Implicit in this material were several facts and assumptions which further served to define the problem and serve as guidelines for the project.

2. Facts

   (a) Females do not pursue the following types of courses:

      1. Engineering
      2. Accounting
      3. Chemists
      4. Architects
      5. Medicine

   (b) School programs do not facilitate non-traditional career choices by gifted and talented female students.

   (c) Necessary career information for use by students is available.

3. Assumptions

   (a) Students do not have available the necessary information to support non-traditional career choices.

   (b) Provision of necessary information and learning experiences will result in non-traditional career decisions.

   (c) Parental involvement will facilitate non-traditional career decisions.

(d) Schools traditionally have not taught students how to process information for career decision-making.

(e) The project is able to gain necessary access to the student population.

(f) Administrators and teachers are major barriers to project access to students.

(g) Target students can "process information" made available to make quality career decisions.

4. Outcomes Sought

(a) There will be increased enrollment by academically talented females in classes which support their career choice.

(b-1) Students will be more aware of projected employment opportunities.

(b-2) The target population will perceive a broader range of career fields as being appropriate.

(b-3) In their career planning, the target population will consider all careers, including those normally restricted to males.

(b-4) There will be more congruence between career choices and aptitude, interest and temperament within the target population.

(b-5) The target population will make more relevant and realistic course selections based on their career aspirations.

(b-6) The target population will achieve increased self-direction and confidence with respect to their own career choices and planning.

(c-1) The staff will become more aware of employment projections and will use this awareness in working with the target population.

(c-2) The staff will perceive a broader range of career options as appropriate for females.

(c-3) The staff will support the target population in their exploration of careers normally selected by males.

(d-1) The student population will perceive teachers and counselors as supportive in their exploration of alternative careers.

(e-1) Parents will be more aware of projected employment opportunities.

(e-2) Parents will perceive a broader range of career options as appropriate for females.

(e-3) Parents will be willing to support their daughters in a career field typically male.

(e-4) Parents expectations will not differ in relation-ship to their differing socio-economic levels.

(f-1) Students will perceive parents as supportive of their career interests.

(g-1) The project will support the reduction of sex bias.

(h-1) The project will reduce the effect of current practices and policies that inhibit career planning and choice.

5. Accomplishments

The outcomes sought in this one-year project were extremely ambitious. The changes in behaviour sought were extremely complex and severely constrained by well-integrated tradition. Additionally, there were many variables and "influential others" (such as parents and local professional women), who were not susceptible to project control. Consequently, the project could only hope to effect behavioral changes by making all parties more sensitive to the problem addressed; providing them with necessary resources and by supporting them in activities designed to facilitate project outcomes.

Accomplishments listed below were designed to initiate needed changes by enhancing the awareness of key persons and by marshalling all available resources within the district and community.

The disruptions presented are organized around the six stages of developmental employed by the project.

6. Identification

(a) Target populations of academically talented females in grades 6, 10, 11, and 12 were selected using grade point averages, scores on the Iowa tests of Basic Skills and teacher nominations.

(b) Students' and their parents' knowledge about career options was aroused.

(c) Enrollment statistics were analyzed to identify problem areas.

(d) A variety of print and non-print media were previewed and selections placed in school Career Informationa Centers.

(e) Working relationships were established with several local and statewide programs which could provide services to the project. Included were the Girl Scouts, Montana Education Association, the YWCA, and the Junior League.

7. Differentiation

(a) Representations from all junior and senior high schools were briefed on the purposes for the project and the resources available within the schools. Their support was solicited in providing services to project students.

(b) The Community Resource Center, Women's Resource Center and Zonta International were briefed on the project and a commitment of support obtained from each.

(c) Liaison persons from each school were appointed by building principals.

8. Implementation

(a) A newsletter titled "Career Scene" was initiated and was mailed regularly to each student in the target population.

(b) A Speakers Bureau was established. The inventory of speakers includes prominent professional women from the local community and adjacent Air Force Base.

(c) Training programs were sponsored for students and their parents. The programs were: Dreams to Reality (Girl Scouts); Leadership Training (Montana Education Association); and Creative Life Planning (Great Falls Junior League).

(d) A variety of printed materials were distributed to teachers and counselors to heighten awareness of their roles in reducing sex stereotyping.

(e) Orientation and training workshops were conducted for:

1. Counselors and department chairmen on how to expand occupational choices;
2. All district staff on available community programs;
3. Outstanding boys and girls to expose them to careers in advertising. (Training conducted by the Ad Club of Great Falls.);
4. Project students to expand their perceptions of the range of career options open to them;
5. All district staff on methods of reducing sex bias. This program was based on video-taped programs from the University of Wisconsin.

The other three stages of project development were:

1. Accommodation
2. Evaluation
3. Integration

The duration of this project was too short to develop these types of outcomes. If continued efforts are devoted

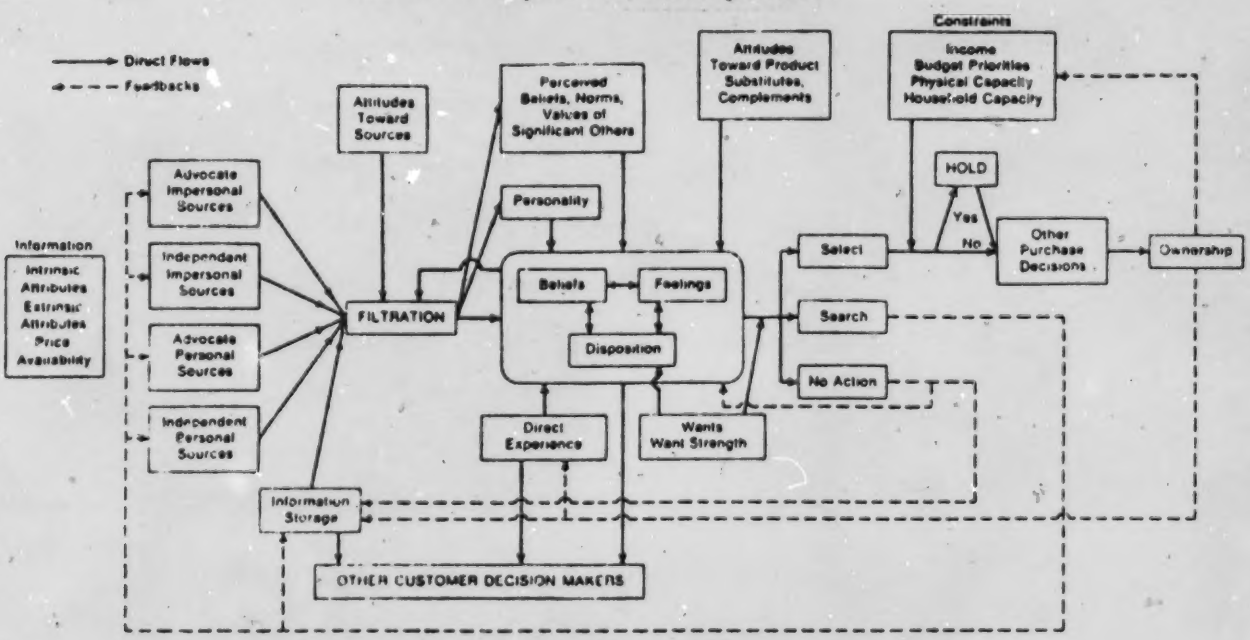
to reduction of sex stereotyping and bias, thru such outcomes could be attained and it would be appropriated to devote project resources to these areas.

B. Major Activities

Major activites of the project were predicated on the developmental sequence described earlier (e.g., Identification, Differentiation, Implementation, etc.). However, the complex nature of behavior changes sought suggested another set of variables would need to be considered in operationalizing the project.

The model shown below (Anderson, 1965) clearly demonstrates the problem confronted. Of special significance were the perceived beliefs norms and values of significant others and the "filtration" process employed by the target population. The concern in focusing upon this latter phenomonen was to ensue that students had the capability - and necessary resources - to make quality decisions about future careers.

Model of complex decision process.



In keeping with those considerations, subject activities focused upon establishing selection criteria, providing students with resources needed for making decisions (generally in the form of training of information), and ensuring that "significant others" were informed about the intent of the project. These latter were parents, teachers, school administrators and civic leaders.

Student Identification: High School

Female students in district high schools were selected for participation on the basis of: (1) nominations; (2) G.P.A., and (3) DAT and other test scores. A specific number of participants was not sought. Rather, all girls who satisified the selection criteria were invited to participate in subject activities. Approximately 36 girls participated in a majority of the activities. These girls were all in the upper 10% of their class academically.

Student Identification and Program: Grades 6 and 7

In the Spring of 1979, scores on the IOWA tests of Basic Skills were analyzed to identify all students who had a composite score at the 90th percentile or above, or who scored above the 90th percentile on any one of the sub test areas (vocabulary, reading, language, work-study skills, math skills). These students were selected for each elementary school. In addition, sixth grade teachers were also asked to nominate students whose names did not appear on the list but who they felt were academically talented. Although, the focus for the program was academically talented female students, both boys and girls were identified.

As 7th grade students, these young people and their parents were invited to an evening workshop at the Junior High School they attend. At the workshops the parents and students were met by a school counselor and a librarian or Career Information "clerk-director". Stressed was the need for capable students to take advantage of their abilities and to be thinking about careers and how school work relates to different careers. An emphasis was placed on the fact that it is just as important for girls to begin early planning as it is for boys. The second point of the meeting was to familiarize students and their parents with the Guidance Information System and other career planning materials and aids that exist in their school. Third, parents were encouraged to keep in touch with the career planning of their youngsters. Fourth, students and parents were invited to return for additional sessions in the evening, if they wished to utilize the career materials and the G.I.S. A fifth concern of each meeting, was to clear up any questions or confusions that might be hindering the student's adjustment to junior high school and, therefore, preventing effective utilization of academic opportunities.

Student Training And Information

Creative Life Planning Seminar. On November 7, 1978, the top 35 girls, by G.P.A., in the senior class at each high school were invited to attend the Creative Life Planning Seminar. The seminar was sponsored jointly in Great Falls by the Junior League, the Young Women's Christian Association, the Career and Vocational Education.

Department of Great Falls Public Schools, and the College of Great Falls. It was open to women from throughout the Great Falls area, and approximately 300 women attended. The workshop was conducted by Alene Moris who is co-founder and director of the Individual Development Center, Incorporated, in Seattle. The seminar was designed to encourage women to take responsibility for their lives, to recognize and value their various life's stages, and to plan for appropriate productive work in each of these stages.

Career Information Newsletter. This newsletter, "The Career Scene," was mailed to the houses of all female students in grades 9-12 who had a 3.0 grade point average or higher. Four issues were written and mailed.

Advertising Club Workshop. On February 21, 1979, the Ad Club of Great Falls sponsored a workshop for outstanding students (both boys and girls), to whet their appetites to consider advertising as a career, or to find out they definitely wouldn't be interested in a career in advertising.

Various advertising jobs such as sales, copywriter, producer, artist, etc., were explored. Commercials that took top state awards in the Great Ad Awards competition in the early 1978's were shown. Students had an opportunity to do a "Brand X" commercial. They presented their ideas and artists from 2 businesses helped them draw up their ideas. The students also heard a speaker who represented one of the larges advertising agencies in New York.

Instructional Unit. In a home arts class for 9th grade students at North Junior High School, a unit of instruction was developed, on an experimental basis, to encourage the students to consider non-traditional careers. All of the students in the class of 15 girls. They were not selected on the basis of academic talent. The unit of instruction involved discussion of the need for girls to consider careers because they will probably, at some time in their life, work for pay; and it included a discussion of the roles they might play and kinds of jobs that might be available to them. They also discussed at some length non-traditional careers. At the request of the two students, two outside speakers were invited to the class. Interestingly enough, the students wanted to hear from a man involved in a non-traditional career as well as a woman. A male nurse and a female school administrator, an elementary principal, were invited to the class to discuss their jobs. The students seemed to be quite interested in the program.

This was, in effect, an experimental program. The teacher and counselor who developed the program plan to attempt to do something similar again. Their focus will be on roles for women in the 80's. They hope to identify an historical basis for career choices and to understand the experiences of women over the years as they have begun to enter into non-traditional career fields. The teachers also plan to incorporate decision-making and values clarification in their approach this year. Perhaps a significant thing about this program is that although

the encouragement last year came because of the federal funding, the plan for this year will be carried out by the teachers themselves and incorporated in their classroom without the use of federal funds.

Multiplying Options. On August 29, 1979, during teacher orientation meetings, a workshop was held for all junior high and high school math and science teachers in the school district. The workshop was built around a video-tape called Multiplying Options and Subtracting Bias. There are 4 versions of this video-tape, one for math and science teachers, one for parents, one for students, and one for counselors. The video-tapes are an outgrowth of a project entitled "Eliminating Sexism from Mathematics Education". This project was funded by a grant from the U.S. Office of Education with the purpose of providing workshop materials designed to provide accurate information about women in mathematics. The video-tapes and workshop were developed by the School of Education at the University of Wisconsin.

This workshop was probably one of the most effective, and best accepted efforts directed towards staff, conduced as a part of the Career Guidance of Academically Gifted Female Students. The math and science teachers were extremely enthusiastic and encouraged the Great Falls School District to purchase the video-tapes once they became available for purchase. This will probably not be until January of 1980. The math/science teachers in also requested that they receive printed materials developed as a part of the workshop indicating careers and the math skills/courses that are advisable for entrance into those careers. These materials were disseminated to the math/science teachers in the school district.

School Representative Workshops. On December 18, 1978, a meeting was held for representatives from each junior/senior

high school building in the district. These representatives were selected by their building principals, and were generally counselors or librarians. They were identified as people who would be interested in being involved and would contribute ideas to a project for academically gifted female students.

The objectives of the project were explained and discussed, as were possible relationships between these objectives and other efforts existent within the district. The Career Internship and PACE (Program for Accelerated Children's Education) programs were identified for further investigation. Individuals interested in developing plans for their buildings/departments were encouraged to contact project staff.

Specific suggestions resulting from this meeting include:

(1) Develop a "Creative Life Seminar" for junior high school girls.

(2) Publish a career information newsletter.

(3) Utilize P.I.R. (Pupil Instruction Related) days for access to students.

(4) Order a variety of materials specifically targeted at gifted female students.

Community Programs. On January 17, 1979, a meeting was held to acquaint staff members with community-based programs that might be utilized by the schools in working with academically gifted female students. All of these programs were oriented toward helping young women to realize their potential, to develop a plan for utilizing that potential, and to consider non-traditional careers. Programs presented at this workshop were (1) the Creative Life Seminar by the

Junior League; (2) the student model of the Montana Education Association Leadership Program; and (3) the Dreams to Reality Program by the Girl Scouts of America. As an outgrowth of this meeting, certain aspects of the M.E.A. Leadership Program were incorporated in the Career Education class and the program for the Gifted and Talented Students at East Junior High School. The high school format of the Creative Life Seminar was utilized in a series of evening programs with female students at C. M. Russell High School. Printed materials from the Girl Scouts Dreams to Realities Program were ordered for utilization in some of the Career Information Centers at the junior and senior high schools.

Occupational Choices and Lifestyles. This workshop was held on February 27, and was conducted by Sally Moore, a Human Potential Development Consultant for the State Department of Vocational and Occupational Services. A variety of activities and discussions, including a film, were used to provide information on ways to expand the range of occupational choices open to students and to explore the influence of teachers and counselors in occupational choices and lifestyles of students.

Those attending the workshop included high school counselors, business, industrial arts and I.C.T. department chairpersons, and chairpersons from major academic areas in the junior and senior high schools. This group numbered approximately 60 people.

Materials Distribution. A variety of printed materials were distributed to all teachers and counselors. These were intended to increase their awareness of the roles they play in sex stereotyping of students. Copies are included as Appendix B.

Community Involvement

Throughout the project an attempt was made to establish contact with, and interact with, various community groups. These groups included the Junior League, Montana Education Association, Girl Scouts of America, the Women's Resource Center, Zonta International (a professional womens organization), and the Community Resource Center. The purpose of coordinating with these groups was to better utilize combined resources, and to attempt to identify role models for young women. This latter goal was not accomplished to the degree that we would have liked. Both Zonta and the Women's Resource Center were going to supply us or the Community Resource Center with names of women in non-traditional career fields; but they, for some reason or other did not follow through on this. Our involvement with the Junior League, the M.E.A. and the Girls Scouts has been described elsewhere. This involvement was quite successful in that it did result in some programs being utilized in the schools. These programs are also described elsewhere. The involvement with the Community Resource Center, is of course, on-going, since they help to locate speakers for classroom use on a continuing basis.

C. Problems

No major problems were encountered, although several factors proved troublesome. These were:

(1) Funding. Starting a one-year project on October 1, made it impossible to complete necessary planning and preparation. This also resulted in the project running through the summer months when students and staff were not available.

(2) Student Access. This problem was closely related to the funding problem. All students in the target population were already enrolled in a full schedule of classes and participating in many extra curricular activities before they were identified. As a consequence, it has been difficult to find meeting times with the students.

D. Publicity Activities

No systematic program has been implemented for publicity purposes. However, a number of project activities have resulted in some publicity. These include:

(1) Newspaper releases.

(2) Publications provided through the district media center.

(3) Staff presentations at: (a) State Career Education Conference; (b) Key Club meeting; (c) Zonta Club meetings; (d) staff meetings conducted by the district and individual schools.

E. Dissemination Activities

The principle product sought has been a cost-effective model for providing career guidance to academically talented girls which can be replicated. This report describes accurately and fully all project outcomes. It serves as the primary dissemination vehicle for the project.

F. Evaluation Of The Project

1. The Project

The major purpose of this project has been to design and demonstrate a career guidance model for academically gifted female students which can overcome problems associated with non-traditional career choices and sex-role stereotyping. General strategies employed by the project to achieve these outcomes were:

(a) Provide students with high levels of interaction with successful role models;

(b) Provide students with a variety of learning experiences which would expand the range of career alternatives considered; and

(c) Provide training and information for "significant others" in the students' environment (e.g., parents, teachers).

The city of Great Falls has a population of approximately 90,000. The city school district enrolls approximately 16,000 students who attend one of the 21 elementary, four junior high or two senior high schools. The District employs approximately 1,000 certificated staff.

2. Purpose for the Evaluation

Evaluative information sought by project staff was that which would show that people affected by the project saw a need for the kinds of activities sponsored by the project. The project staff also wanted to know if target populations perceived project activities as useful or worthwhile.

The project required information about the context which could serve as the basis for design and implementation of intervention strategies. An example is perceptions of school teachers about "barriers" to girls pursuing non-traditional careers.

Based on these requirements, five objectives were established for the evaluation:

(a) Monitor project activities designed to accommodate unique differences among the student target population of gifted and talented females.

(b) Provide evidence about the nature and extent of sex-role stereotyping in: (1) school programs; (2) employer and employment situations; (3) home environment; and (4) community activities.

(c) Document activities in each stage of development in a manner that will facilitate establishment of relationships with later outcomes. The

stages of development to be documented are:

(1) Identification

(2) Differentiation

(3) Implementation

(4) Accommodation

(5) Evaluation

(6) Integration

(d) To facilitate making predictions about outcomes from different intervention strategies and verifying the predictions over time.

(e) To provide those types of data that will facilitate making decisions about revising, continuing or terminating specified project activities.

3. Procedures

Four evaluation instruments were developed specifically for the project. These were administered to all project students, their parents, and district department chairmen. These instruments, and their purposes, are described on the following page:

Instrument	Purpose
Student Assessment	• Awareness of employment opportunities • Perceptions of career possibilities • Career goals • Quality of career goals
Parent Assessment	• Awareness of employment prospects • Perceptions of female career opportunities • Preferences for daughters' careers
District Staff Assessment	• Barriers to enrolling in non-traditional courses • Role of teachers in career counseling • Perceptions of effective strategies for overcoming societal expectations
Project Activity Assessment	• Effects of workshops • Needed changes in workshops • Value of workshops

A variety of record data also contributes to this evaluation. A partial listing is presented below:

- Male - female course enrollment
- Non-traditional career exploration by girls
- Standardized testing results
- Materials acquisition and distribution
- Activities logs

These data were gathered from a variety of sources by project staff.

4. Report of Data

Students who participated in the majority of project activities were drawn from both district high schools; 21

TABLE 1

Fathers and Mothers Work

Type of Work	G.F.H.S.		C.M.R.	
	Father	Mother	Father	Mother
Clerical	2*	8	0	8
Craftsman	5	0	5	0
Farmer	0	0	2	0
Laborer	0	0	0	0
Manager	14	2	8	0
Military	0	0	2	0
Operative	2	0	5	0
Professional	19	11	8	22
Proprietor	2	0	2	2
Protective Service	0	0	2	0
Sales	5	2	0	0
Service	0	0	2	8
Technical	2	0	0	0
Homemaker	0	22	0	8

*All entrees are percentage of respondents.

from Great Falls High and 15 from C. M. Russell High. All of the girls were enrolled in the 12th grade. These students were volunteers from among more than 200 who had a grade point average of 3.0 or higher.

Their average scores on the DAT VR and NA was 56 (Great Falls High School = 55; C. M. Russell High = 57). The national norms for these tests are 45-47 (50th percentile) which places these students in the third quartile.

They were drawn from a wide range of occupational environments as shown by the data presented in Table 1. The fact that a majority of the students parents were professional persons and that student participants were volunters is significant. Data presented later will again highlight this relationship.

Formal education completed by participants' fathers and mothers is shown in Tables 2 and 3 respectively. Over 50% of the students' fathers had a college degree and over 50% of the students/ mothers had some college training (47% had a college degree).

TABLE 2
Formal Education Completed By
Students' Father

Elementary School	3%
Some high school training	6%
High school diploma	17%
Some college training	19%
College degree	33%
Some graduate school training	3%
Graduate school degree	19%

TABLE 3
Formal Education Completed By
Students' Mother

Elementary School	Ø
Some high school training	Ø
High school diploma	39%
Some college training	14%
College degree	17%
Some graduate school training	19%
Graduate school degree	11%

Student plans for one and five years after high school are reported in Table 4.

TABLE 4

Plan Alternatives	One Year	Five Years
• Going to school; not working	54*	2
• Mostly going to school; work part time	31	13
• Mostly working; school part time	3	10
• Working; no school	5	55
• Other plans; no work and no school	Ø	2

*All entries are percentage of respondents.

Student family environment and academic success in high school are clearly reflected in thier perceived plans - with over 80% planning to continue their education for at least four years. One could infer from these data that most students will be seeking a baccalaureat degree. This conclusion is substantiated by student educational plans shown in Table 5.

TABLE 5
Student Educational Plans One
Year After High School

None	3%
Apprenticeship	Ø
Vocational, Technical, Business, Trade	5%
Junior or community college academics	13%
Four year college or university	80%
Other education	Ø

Career plans currently held by students are shown in Table 6. Their aspirations for advanced education are again already reflected.

TABLE 6

Occupational Field	Percentage of Respondents
Clerical	8%
Crafsman	6%
Farmer	
Homemaker	3%
Laborer	
Manager	6%
Military	
Operative	
Professional	69%
Proprietor	
Protective Science	
Sales	3%
Service	
Technical	5%

The quality of students' career decisions are manifest in data shown in Tables 7 and 8; students employment history and expected occupational benefits from high school. These data, in combination with those about their home environment, suggest students have head sufficient work experience and academic success to make valid and useful judgements about their future.

TABLE 7
Students Employment History

No paid work experience	13%
Some paid work experience, but less than 3 months full time or six months part time	31%
At least 3 months full time or 6 months part time	14%
At least 6 months full time or 12 months part time	28%
At least 1 year full time or 2 years part time	14%

TABLE 8
Occupational Benefits Expected From High School By Project Students

Alternative Benefits From High School	Strongly Disagree	Disagree	Agree	Strongly Agree
The school helped to prepare me for work	2%	28%	56%	14%
The school helped to prepare me for college	2%	6%	50%	44%
The school helped me to decide what I want to do after high school	17%	31%	39%	8%
The school helped me to better understand myself	6%	22%	50%	22%
The school helped me to get along better with others	3%	6%	58%	28%

Data presented in Table 9 support these conclusions. For example, about 90% of the respondents indicated that they expected to develop post-high school plans and acquire needed skills and knowledge while in high school. Consequently, nearly 70% stated that getting away from problems at high school was not an important outcome.

Finally, data presented in Tables 10-13 point out some important characteristics of the target population: (1) they liked school this year; (2) they have always liked school; (3) it is important to be successful in school work; and (4) being a high achiever is important.

TABLE 9

Perceived Importance of Possible High School Outcomes

Possible Outcomes	Not Important	Somewhat Important	Important
To develop plans for after high school	Ø	14%	86%
To learn things I want to learn	Ø	11%	89%
To make new friends	Ø	36%	64%
To find out more about my own values, interests, needs and goals	Ø	33%	67%
To plan my own learning program	6%	42%	53%
To get into a program different from regular school	25%	47%	28%
To work with adults in the community	19%	47%	33%
To have more individual attention	22%	53%	25%
To find out more about careers	6%	22%	69%
To have learning activities outside of the classroom	8%	36%	56%
To get job training	19%	33%	47%
To have more responsibility and independence	6%	22%	72%
To get away from problems at my previous school	69%	22%	8%
To improve my skills in meeting and dealing with adults	6%	42%	53%
To get help in finding a job	11%	50%	39%

TABLE 10

Student Satisfaction With School This Year

How did you like school this year?

I disliked almost everything about it	Ø
I disliked it more than I liked it	11%
I liked and disliked it equally	3%
I liked it more than I disliked it	36%
I liked almost everything about it	50%

TABLE 11

Student Satisfaction With School In Previous Years

How did you like school in the years before this year?

I disliked almost everything about it	Ø
I disliked it more than I liked it	3%
I liked and disliked it about equally	22%
I liked it more than I disliked it	25%
I liked almost everything about it	50%

TABLE 12

Student Need For Success In School

Keeping on top of my school work is

Never important to me	Ø
Not usually important to me	Ø
Sometimes important and sometimes not	Ø
Usually important to me	28%
Always important to me	72%

TABLE 13

Student Need For Achievement

Getting good grades is

Never important to me	Ø
Not usually important to me	Ø
Sometimes important and sometimes not	3%
Usually important to me	33%
Always important to me	64%

Near the conclusion of the academic year, project students and students in grades 9, 10, and 11 were asked a series of questions related to the formation of career goals and changes that had occured in both goals and alternatives being considered. Additionally, they were asked about changes needed in their academic programs that would have been beneficial. These data are presented in Table 14.

These data suggest the following:

(1) Students are less certain of a career goal as they approach the time to make a final decision.

(2) Students consider more options in later years, but in a more concerted and focused manner.

(3) Students are better able to obtain needed information in later years of high school. This could be the result of EBCE activities.

(4) Senior students are more aware of needed course work than are ninth grade students.

TABLE 14

Comparison of Student Responses to
A Career Education Survey

Question	Response Options	Grade 9	**10	11	12
Age	14	42*			
	15	57	100		
	16			31	17
	17			67	47
	18			1	44
Have a career goal	Yes	100	100	78	76
	No	Ø	Ø	22	24
Career plans more focused	Yes	21	100	34	76
	No	79	Ø	66	24
Considering new career options	Yes	14	50	75	79
	No	86	50	25	21
Able to obtain needed information	Yes	7	100	71	88
	No	93	Ø	29	12
Any career counseling	Yes	42	Ø	22	26
	No	58	100	78	74
Courses should have taken, but did not	Yes	50	Ø	68	82
	No	50	100	32	18

* All entries are percentage of respondents
** Small sample may have distorted these data

Comments made by twelfth grade students provide additional insights into their formulation of career goals. Examples are provided below.

(1) Career goals selected

- health field
- law
- writing
- veterinary medicine
- beautician

(2) Factors that led to a sharpened career focus

- career class
- age
- interests better defined

(3) The following careers were named by those students who are considering new options

- accountant
- medicine
- photography
- biologist
- acting
- lawyer
- bookkeeper
- psychologist
- therapist

(4) Career information sources used

- career class
- job interview
- library books

(5) Courses that should have been taken

- journalism
- debate
- typing
- drama
- career (EBCE)
- chemistry
- foreign language

(6) Reasons for not taking needed courses

- class filled
- scheduling problems

Additional insights are provided by the male - female distribution of students enrolled in selected courses during 1978-79. These are shown in Table 15.

TABLE 15

Male - Female Distribution of Students
Enrolled in Selected Courses

Course	CHARLES M. RUSSELL			GREAT FALLS HIGH		
	Boys	Girls	Total	Boys	Girls	Total
Advance Biology	41	54	95	12	12	24
Second Year Algebra	58	36	94	76	53	129
Third Year Algebra	39	26	65	37	24	61
Math Analysis	13	5	18	10	3	13
General Chemistry	75	64	139	20	33	53
Chemistry Study (Scientific)	54	32	86	41	37	78
Physics	51	18	69	38	17	55
Computer Science	20	6	26	53	30	83
Drafting	37	4	41	65	2	67
Geometry	100	96	196	86	82	168
Business Law	20	13	33	19	12	31

The only serious discrepencies apparent are in Math Analysis, Chemistry study, Physics, Computer Science, and Drafting. This situation could change as a result of explorations done by ninth grade students in 1978-79. Shown in Table 16 are non-traditional explorations by female students enrolled in one junior high career education class.

TABLE 16

Non-Traditional Explorations At The
Ninth Grade Level

Career Area	Number of Girls Exploring
Veterinarian	11
Air Traffic Control	1
Disc Jockey	9
Hotel Manager	1
Lawyer	5
Architecture	6
Law Enforcement	9
Mortician	6
Computer Programming	3
Osteopathic Physician	1

Creative Life Planning Seminar. This seminar, conducted by a regional consultant, is designed to encourage women to take responsibility for their lives, to recognize and value their various life stages, and to plan for appropriate productive work in each of these stages. Student ratings of the degree to which these were attained are presented in Table 17.

TABLE 17

Attainment of Desired Outcomes of the
Creative Life Planning Seminar

Outcomes Sought	Low 1	2	3	4	5	6	High 7
Assume greater responsibility for my life	19*	23	8	15	19	8	8
Understand life stages	23	8	31	19	4	8	8
Stimulate planning for work in each life stage	8	12	19	15	12	8	27

*All entries are percentage of respondents N=26

Given the complex nature of the desired outcomes, the limited experience of these students and the short duration of the training session the variety in ratings could be expected. Further evidence is found in students recommendations of the workshop for other students. While 46% would recommend the activity for other girls, 31% were undecided. Participants satisfaction with this type of activity, however, was rather clear as manifest in their desire to be contacted about future workshops (86% said they would) and their desire to receive information about career and educational opportunities for women (88% would like to receive information).

Student comments about the Seminar provide useful information about the conduct of such activities in the future. They suggested the following changes:

- more emphasis on career and education opportunities
- too strong on women's liberation
- directed too much toward older women

- seemed more like a feminist rally
- women speakers who are less biased
- focus on high school, not middle aged women
- wasn't at all what we expected
- more on career planning
- no changes
- provide specific career names where women are needed
- too boring
- couldn't determine how to use instruction obtained
- workshop wasn't related to our needs

Students indicated they had obtained the following ideas from the session:

- learn about mechanics
- women can do what they desire
- opportunities available to women
- do your own thing
- don't depend on men
- be proud of being female
- value of women's business
- invest energy in worthwhile activities
- organize time and work

Finally, student participants made the following comments about the seminar:

- thank you for this experience
- help to explain how to ovoercome problems

- have a similar program for men
- it was great
- don't stick on the abstract; get into specifics
- the major speaker was great
- we needed a better speaker

Project Environment. Two instruments were used to assess aspects of students leaving environment assumed to be critical to shaping non-traditional career goals. These were the school curruculum and policies and students' home environment.

Fourty-two junior - senior high school department chairmen were asked if they believed that "barriers" to student enrollment existed. Fifty-nine percent of the respondents (department chairmen) said they did not. Comments made by respondents, such as "we are in full compliance with Title IX" suggested this was a poor question; that respondents could not afford to say that barriers did exist.

However, those who said barriers did exist provided the following examples:

(1) peer pressure

(2) personal expectation

(3) student interests

These data suggest further that school administration are not sensitive to the problem -- their perceptions are restricted to a federal program and enrollment in courses.

While 90% of the department chairmen believed that it was appropriate for teachers to counsel students, they indicated this should only happen if the course was appropriate to such counseling. Given their lack of understanding of the problem (as manifest in preceding comments) the nature and quality of such counseling must be questionable.

Over 95% of the department chairmen believed that teachers can assist students in making career decisions. They provided the following examples of appropriate assistance:

- exposure to a variety of careers
- provide information
- operate home rooms; enter into a dialogue
- provide for guest lecturers
- expose students to persons successful in non-traditional careers

Finally, department chairmen suggested the following strategies for remediating society expectations about careers for women:

- changing attitudes takes time; go slow
- counsel students
- raise marrying age to 25 years
- counsel "patience" in women
- provide information
- provide girls with different types of learning experiences

- train teachers to be more open-minded
- require hard work from students; "expect less and get less"
- make non-traditional causes mandatory
- provide extensive parent training

Among 22 parents who responded to a project questionnaire, 77% of the mothers and 96% of the fathers were employed full time. Eighty-six percent believed their daughters had made plans to pursue a career. Nearly 75% believed thier daughter should be able to examine a "free choice" in selecting a career while others suggested banking, business, accounting, health and dental hygiene.

Parents rated employment prospects for their daughters chosen career as follows:

Excellent	9%
Very Good	32%
Good	27%
Competitive	18%
Keen Competition . .	14%

Parents perceptions of the job outlook in a variety of careers are shown in Table 18. The frequence of stating that a job would be suitable for either men or women suggests that parents were very open minded. This is congruent with their levels and types of occupational training.

TABLE 18

Parent Perceptions of Vocational Opportunities

Careers	Job Outlook In General				Job Would Be Suitable For: (May Check One or More)			
	Poor	Fair	Good	Excellent	Women	Men	Men or Women	Your Daughter
Accountants		30*	60	10	20	30	90	40
Architects		20	50	20		20	70	10
Actors/Actresses	80	10					80	
Anthropologists		70	20				70	10
Airplaine Pilots	30	30	30		10	40	30	10
Bank Officers	10	40	30	10	10	10	70	30
Chemists		30	60		10		70	20
Computer Programmer		10	50	30			90	20
Credit Managers		30	40	20			90	20
Drafters		30	50			30	50	
Engineers		30	40	20	10	40	40	
Foresters	20	30	40		10	60	20	
Insurance Agents	10	20	40	20	10		80	
Lawyers	20	50	10	10		10	80	10
Librarians	20	20	60		40	10	60	30
Oceanographers	10	30	30	20		10	80	10
Pharmacists		20	60	10			90	30
Purchasing Agents		50	20	20		30	60	10
Psychologists	10	20	60				90	20
Physicists		10	60	10		40	50	30
Physicians		30	10	50		10	80	10
Registered Nurses		10	40	40	50		40	30
Radio/TV Announcers	10	60	20		10	10	70	
Surveyors		40	40	10	10	50	30	
Statisticians	10	40	20	10		10	70	
Social Workers	10	30	30	20	10		80	30
Sociologists	20	40	30	10	10		80	20
School Teachers	40	40			10	10	90	30
University Prof.	20	40	10	10			90	10

* = percentage of respondents

Finally, parents were asked what they believed had been the major influence on their daughter's choice of a career. Their responses are presented below in rank order:

(1) Schools

(2) Student interests

(3) Relatives

(4) Work training

(5) Teachers

(6) Travel

(7) Friends

Support System Development. The following materials were added to the district media collection to further project careers.

"Women at Work - A Photographic Documentary by Betty Medsger
(Sent to each secondary library) Company: Sheed and Ward
6700 Squibb Road
Mission, KS 66206

"In Her Father's Footsteps" by Bianca Bradbury
(Sent to each secondary library) Company: Houghton Mifflin
777 California Ave.
Palo Alto, CA 94303

"I Can Be Anything" by Joyce Slayton Mitchell
(Sent to each seondary library) Company: College Board Pub.
P. O. Box 2815
Princeton, NJ 08540

"Nontraditional Careers for Women" by Sara Splaver
(Sent to each secondary library) Company: Julian Messner
1230 Ave. of the Americas
New York, NY 10020

"Windows on Women"
(Sent to each secondary library) Company: Halls of Ivy Press
13050 Raymer Street
North Nollywood, CA 91605

"Room With No View" by Ethel Strainchamps
"Women Who Make Movies" by Sharon Smith
(Sent to each secondary library; Speech/Drama Departments notified)

Company: X-S Books, Incorporated
675 Dell Road
Carlstadt, NJ 07072

"Other Choices for Becoming a Woman: A Handbook to Help High School Women Make Decisions" by Joyce Slayton Mitchell
(Sent to each secondary library)

Company: Delacorte Press (Dial Press)
1 Dag Hammarskjold Plaza
245 E. 45th Street
New York, NY 10017

"Remarkable American Women, 1776-1976"
(Sent to each secondary library)

Company: Time, Incorporated
Subscription Service
541 North Fairbanks Court
Chicago, IL 60611

"What Can She Be?" (series included: A Farmer; A Lawyer; A Musician; A Geologist; A Police Officer; A Newscaster, A Veterinarian; An Architect; A Film Producer)
(Sent to each junior high school)

Company: Lothrop Publishers
Wilmore Warehouse
6 Henderson Drive
West Caldwell, NJ 07006

"New Career Options for Women (A Counselor's Handbook - Part I)"
(Sent to each counseling department)

Company: Human Sciences Press
72 5th Avenue
New York, NY 10011

"Job Hunting Secrets and Tactics"
(Sent to each secondary library)

Company: Follett Publishing Co.
1010 West Washington Blvd.
Chicago, IL 60607

"Classroom Practices in Teaching English, 1976-77: Responses to Sexism"
(Sent to each department chairman)

Company: National Council of Teachers of English
1111 Kenyon Road
Urbana, IL 61801

In order to facilitate the use of resource persons in the classroom, the project prepared a guide for speakers. The intent of this guide was to inform teachers about the intents of the project and also to provide speakers with a listing of relevant topics.

The guide is reproduced below:

GUIDE FOR SPEAKERS WHO WORK IN
NONTRADITIONAL CAREER FIELDS

1) Your background: we are interested in students knowing about different lifestyles that might be connected with the various career fields.

2) What led to your selection of a nontraditional career field?

3) What training, education and/or skills did you have to acquire? What subjects might relate to these requirements?

4) Were there any problems or difficulties in getting the training for this area? Were any of these related to your sex?

5) Opportunities - what is the employment trend in the future? What is the employment trend for people of your sex who work in this career field?

6) What rewards or self-satisfaction do you receive?

7) Job satisfaction - advantages and disadvantages of your occupation.

8) Problems for persons of your sex working in this area. Difficulties for you if this is a dual-career role (as homemaker and professional person). Coping skills needed.

9) What special skills or abilities (as assertion training, stress management) do you need to enter and be involved in this field.

10) Description of the job itself - a typical day.

11) Are there any legal requirements or restrictions?

12) In retrospect what would you do differently to enter this career field?

5. Conclusions and Recommendations

(a) Conclusions

(1) The project was able to attain all major outcomes sought.

(2) The schools appear to be a more significant constraint to project purposes than do parents.

(3) The target population is quite sophisticated in their ability to find and use career information; formulate career plans; and critique their educational experiences.

(b) Recommendations

(1) Additional research is needed about how to further objectives of the project.

(2) The problem addressed is very important. Continuation of the project is warranted.

G. Personnel Activities

Due to the limited duration of the project and the staffing pattern employed, no significant staff training or management problems were encountered. Generally, the project used a "multiplier" system to greatly expand services made available with limited resources, e.g.; a trained person would train others who would them conduct training seminars.

Additionally, the project made extensive use of materials and services made available through various civic agencies (e.g., YWCE, Zonta). This strategy added naturally to available personnel resources at little additional cost.

H. Conclusions and Recommendations

1. Conclusions

(a) The project has focused on enhancing awareness among various groups of the need to provide programs for talented girls, especially in non-traditional fields. Groups with whom working relationships were

established included the Junior League; Montana Education Association; Girl Scouts of America; Womens Resource Center; Zonta (professional womens organization); and the Community Resource Center.

(b) Cooperation with on-going activities has enabled the project to maximize the use of its relatively scarce resources.

(c) The district has expanded some of its own resources in furthering the goals of this project and continued use of these resources should be encouraged. In all liklihood, simply causing girls to consider non-traditional careers will open new horizons for them.

(d) Full realization of the desired outcomes for this project are likely to be many years away. This was not unexpected as changing values and attitudes, in a complex environment, is a slow and difficult task.

2. Recommendations

(a) That the Department of Education support an extensive research program to identify which variables have the most significant effect on remediating the problem addressed by this project.

(b) That special training materials be developed to improve school staff sensitivity to the problem addressed.

(c) That new forms of instruction be developed that provide needed flexibility for allowing talented students to accept greater responsibility for their education.

APPENDIX A

1. Project Number: 554AH80635

2. Grant Number: G00-7-80-2034

3. Nature of Report: Semi-Annual

4. Project Title: Career Guidance for Academically Gifted Female Students: A Coordination of Resources to Develop Human Potential

5. Period Covered: October 1, 1978 to April 1, 1979

6. Project Category: Populations

7. Project Director: Frances Jackson

8. Name and Address of Grantee: Great Falls Public Schools
District #1 and A
P. O. Box 2428
Great Falls, Montana 59403
(406) 791-2185

9. MAJOR ACTIVITIES:

a. Using grade point averages, Iowa Tests of Basic Skills scores, and teacher nominations, the academically talented females have been identified at grades 6, 10, 11, and 12.

b. In November, 48 academically talented senior girls and 30 female counselors and instructors were guests of the project at The Creative Life Planning Seminar conducted by Alene H. Moris of The Individual Development Center, Seattle, Washington. (Appendix A) Over 300 women from the community attended the workshop which was sponsored by the project and several community organizations.

Questionnaires were designed by the project staff and sent to parents and students to determine their knowledge about careers, their flexibility (freedom from sex bias) in career decision making, and their reaction to the workshop. (Appendix B) Results of the questionnaires are in the hands of the third party evaluator.

c. Meetings were held with elementary and secondary principals, librarians, counselors, secondary department chairmen, and PACE Coordinators (Program for Advanced Children's Education) to explain the project and secure support and cooperation.

d. The Community Resource Center, the local Women's Resource Center, and the local club of Zonta International have been contacted to increase the listing of women working in prestigious and/or non-traditional careers.

e. Following a news release on the project, (Appendix C) the staff was contacted by a representative of the four female attorney's in Great Falls to offer their assistance and cooperation. (Appendix C)

f. Enrollment figures at the two high schools were studied to determine subject areas having a low enrollment of females and to provide additional support and direction for project activities.

g. With the assistance of the building principals, staff members in each secondary school were identified to serve as liaison for the project.

h. Community programs that aim at the career and human potential development of girls and women has been identified. Meetings with representatives of these programs and school staff have been conducted to explore and develop ways of bringing these programs and students together. Some of the programs explored have been: The Creative Life Planning Seminar/Career Development Program sponsored by the Junior League; The Girl Scouts of America, "Dreams to Reality"; and the Montana Education Association's Leadership Training Program.

i. A wide variety of print and audio-visual materials have been previewed in order to make selections of sex-bias free career materials for placement in the career information centers located in the schools. Instructors are notified when career materials related to their subject area have been placed in the schools or media centers.

j. Printed materials have been distributed to all teachers and counselors to help increase their awareness of the roles they may play in sex stereotyping of students. (Appendix D) Articles sent out are: "Values", "Teacher Self Check List", "Gifted Females: Are We Meeting Their Counseling Needs", "What Can Schools Do to Enhance Participation and Achievement of Young Women in Mathematics and the Physical Sciences?", "Factors Leading to Success-Present and Future".

k. Sally Moore, a Human Potential Development Consultant for the State Department of Vocational and Occupational Services conducted a workshop for all counselors and department chairmen. The purpose of the workshop was to provide information on ways to expand the range of occupational choices open to students and to explore the influences of teachers and counselors in the occupational choices and lifestyles of students. Two sessions of the workshop were held for a total of 55 staff members.

l. The "Career Scene", a career information newsletter has been started. (Appendix E) It is being sent, by bulk mailing, to all the 10th, 11th, and 12th grade female students identified as academically gifted and to any others suggested by school staff. We plan to continue this newsletter throughout the spring and summer.

10. PROJECT PARTICIPANTS: (To be included in the final report only.)

11. EVALUATION:

The contract with Dr. Frank Nelson, the third party evaluator, has been completed, and we have had two meetings with him. The results of the quesionnaire following the Creative Life Planning Seminar have been given to him for analysis. He is in the process of developing the final evaluation plan and the instrumentation to be used in the evaluation.

12. ANTICIPATED CHANGES AND/OR PROBLEMS:

a. Because the funding for the project was late in arriving, the project dates were established as October 1, 1978 to October 1, 1979. This created two problems. One was that it was impossible to do much of the basic ground work before the start of the student's school year. The second problem is that the project will run through the three months of summer when the schools are generally closed and the school staff is on vacation.

We plan to continue writing and sending out the "Career Scene" (career information newsletter), during the summer and we are exploring the possibility of some student and/or student-parent workshops during the summer.

Access to the students has been, and continues to be, a problem. The academically talented students identified are enrolled in a full schedule of classes and usually are busy with extra-curricular activities. Finding times to meet and work with them is difficult.

13. DISSEMINATION ACTIVITIES:

a. A newspaper release publicized the beginning of the program. (See Appendix C)

b. Teachers and counselors have been provided with information on new audio-visual materials placed in the District Media Center.

c. The project was explained at the State Career Education Conference.

d. Several written requests for information have been responded to. A special letter was develcped for this purpose. (Appendix F)

e. Project staff was invited to the C. M. Russell Key Club and Zonta Club meetings to explain the project. Student response was enthusiastic.

14. SPECIAL ACTIVITIES:

a. Dr. Murton McCluskey, coordinator of Indian Studies for the Great Falls Public Schools has been contacted. He will provide the project with the names of Indian students who are academically talented; but who, because of their background, may not have been included in the initial identification of academically talented female students.

b. The project staff assisted the Advertising Club of Great Falls in sponsoring a career workshop. Outstanding students in the areas of art, journalism, speech-debate, and distributive education were selected and the were introduced to various advertising careers. Lectures and experiential activities were utilized.

c. The Guidance Information System (computerized guidance information), which is located in each school was explained at the state conference for PACE (Program for Advanced Children's Education).

APPENDIXES

(APPENDIX A)

CREATIVE LIFE PLANNING WORKSHOP

HERITAGE INN • TUESDAY, NOVEMBER 7, 1978 • 9:00 A.M.

SPONSORED BY
Junior League of Great Falls, Inc.

Assisted by

Career & Vocational Education Department of Great Falls Schools

Young Women's Christian Association

College of Great Falls

American Association of University Women

CREATIVE LIFE PLANNING SEMINAR

This seminar is designed to encourage women to take responsibility for their lives, to recognize and value their various life stages, and to plan for appropriate, productive work in each of these stages.

FORMAT

9:00 - 9:30 a.m.	**Check In**	
9:30 - 10:00 a.m.	**Presentation-Discussion:**	Women's Talents are Needed by the World
10:00 - 10:30 a.m.	**Verbal Exercise in Triads:**	A Fairy Godmother's Offer
10:30 - 11:15 a.m.	**Presentation-Discussion:**	Recognizing Women's Braided Lives
11:15 - 12:00 p.m.	**Verbal, Written Exercise:**	The Different Kinds of "Pay" for Work
12:00 - 1:00 p.m.	**Lunch**	
1:00 - 1:30 p.m.	**Presentation-Discussion:**	The Psychological Realities for Women
1:30 - 2:15 p.m.	**Verbal and Written Exercise:**	Identifying Your Individual Growth Needs
2:15 - 3:00 p.m.	**Summary Presentation:**	Questions and Answers

Alene Moris is a noted counselor and dynamic leader in creative life planning. She is director and co-founder of the Individual Development Center, Inc., Seattle, Washington. She is the author of books and articles relating to career counseling and self-discovery. Mrs. Moris has directed Volunteer Career Development Workshops, Creative Life Planning Seminars, and Seminars for Educators for new approaches to career counseling of women throughout Canada and the United States.

The Workshop deals with the philosophy of life planning and is especially directed to women. Women must change their concepts of themselves if they are to live dynamically in this new age. Women should plan for future years and development in order to lead a truly meaningful life.

(APPENDIX B)

Great Falls Public Schools
Great Falls, Montana

Career Education

Student Questionnaire

Name_____ School_____

1. Have you selected a career (occupation) or careers you would be interested in pursuing as an adult? ☐ Yes ☐ No

   If yes, which?_____

   _____

2. If not, are you considering any particular career or careers? ☐ Yes ☐ No

   Which?_____

3. If you are not considering any particular career or careers, what have you thought you might do with your life as an adult?_____

   _____

   _____

4. Briefly explain your reason(s) for choosing or considering any particular career or careers:

   _____

   _____

   _____

   _____

5. What has been the major influence in your decisions regarding a career or careers to follow or to consider?_____

   _____

6. To what extent have you been encouraged by the following persons to pursue the career or careers you have selected or are considering?

	Not at All		Somewhat		Quite a Bit		Very Much
Counselors	1	2	3	4	5	6	7
Teachers	1	2	3	4	5	6	7
Parents	1	2	3	4	5	6	7

7. What abilities or talents do you have that you feel would help you be successful in this career (or careers)?_____

_____

_____

8. List below any classes you have taken, or plan to take, because you thought they would be especially important in preparing for a career. These could be required or elective classes. If the class didn't turn out to have much relationship to your career plans, mark an "X" beside it.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

9. To what extent do you feel you know yourself (your interests, abilities, and personality) well enough to make a sound career choice? (Circle the number that best indicates your response.)

1	2	3	4	5	6	7
Not Very Well		Fairly Well		Quite Well		Very Well

10. How confident do you feel in your ability to make a sound career choice (considering job opportunities, desired lifestyle, training or education required, your abilities, etc.)?

1	2	3	4	5	6	7
Not at All		Somewhat		Quite		Very

11. To what extent have your decisions regarding a career or careers been your own or influenced primarily by others?

1	2	3	4	5	6	7
Completely My Own		More Mine		More by Other(s)		Completely by Other(s)

Student Questionnaire - Continued

12. List below any classes you wanted to take because of your career plans, but couldn't, and explain why you couldn't take them. (Example: was offered at the same time as another class I needed; no room in my schedule; etc.)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

13. Please list the occupations of your parents.

Mother _____

Father _____

14. "Job outlook" is a term used to tell how many people will be needed to work in a career field. Check one of the following that you think applies to the career you have selected or are most strongly considering.

Career: _____

☐ Excellent, meaning the demand will be much greater than the supply.

☐ Very good, demand greater than supply.

☐ Good or favorable, demand and supply roughly balanced.

☐ May face competition, supply likely to be greater than demand.

☐ Keen competition, supply greater than demand.

15. Please rate the careers listed below according to what you think will be the Job Outlook in General and the Job Outlook for Women.

Careers	Job Outlook in General				Job Outlook for Women			
	Poor	Fair	Good	Excellent	Poor	Fair	Good	Excellent
Accountants								
Architects								
Actors/Actresses								
Anthropologists								
Airplane Pilots								
Bank Officers								
Chemists								
Computer Programmers								
Credit Managers								
Drafters								
Engineers								
Foresters								
Insurance Agents								
Lawyers								
Librarians								
Oceanographers								
Pharmacists								
Purchasing Agents								
Psychologists								
Physicists								
Physicians								
Registered Nurses								
Radio/TV Announcers								
Surveyors								
Statisticians								
Social Workers								
Sociologists								
School Teachers								
University Professors								

(APPENDIX B continued)

Student Questionnaire - Continued

16. Mark an "X" in the box if you think you would be encouraged to enter the careers on the left by:

Careers	School Counselors	Teachers	Parents
Accountants			
Architects			
Actors/Actresses			
Anthropologists			
Airplane Pilots			
Bank Officers			
Chemists			
Computer Programmers			
Credit Managers			
Drafters			
Engineers			
Foresters			
Insurance Agents			
Lawyers			
Librarians			
Oceanographers			
Pharmacists			
Purchasing Agents			
Psychologists			
Physicists			
Physicians			
Registered Nurses			
Radio/TV Announcers			
Surveyors			
Statisticians			
Social Workers			
Sociologists			
School Teachers			
University Professors			

(APPENDIX B continued)

GREAT FALLS PUBLIC SCHOOLS
1100 FOURTH STREET SOUTH P. O. BOX 2428
GREAT FALLS, MONTANA 59403

Dear Parent:

We were pleased to learn that your daughter was interested in attending the Creative Life Planning Seminar on November 7. We hope that what took place during the seminar will be helpful as she makes plans for her future.

The Career Education Department is continuously planning and developing programs to provide students with information and experiences that will help them as they consider their plans for after high school. At the present time we are working on plans to give more help to young women, like your daughter, who have achieved high academic standing while in school.

We are currently trying to answer questions about what people or experiences have the greatest effect on the career choices of young women; whether parents want or need to be more involved in the career decisions of their daughters; and what kinds of job information parents and students have or need.

It would be helpful if both parents could complete the questionnaire together and return it before November 15, 1978.

We will appreciate whatever time and information you are able to give in order to help us as we develop programs that will provide information and experiences necessary for academically talented girls to make satisfying plans for their future.

Sincerely,

Richard E Wooden

Richard E. Wooden
Career Education Department

Great Falls Public Schools
Great Falls, Montana

Career Education

Parent Questionnaire

Name(s)_____ Date_____

1. Mother's Occupation_____

   ☐ Full Time

   ☐ Part Time

2. Father's Occupation_____

   ☐ Full Time

   ☐ Part Time

3. Has your daughter made plans to pursue a career in her adult years?

   ☐ Yes ☐ No

   If yes, what career?_____

4. If not, is she considering any particular careers or other plans?_____

   _____

5. What do you think has been the major influence leading to her selection of this plan for her future?

   _____

   _____

   _____

   _____

6. "Job Outlook" is a term used to tell how many people will be needed to work in a career field. Check one of the following that you think applies to the career your daughter has selected or is most strongly considering.

   Career selected or considering is: _____

   ☐ Excellent, meaning the demand will be much greater than the supply.

   ☐ Very good, demand greater than supply.

   ☐ Good or favorable, demand and supply roughly balanced.

   ☐ May face competition, supply likely to be greater than demand.

   ☐ Keen competition, supply greater than demand.

7. What career or careers would you like to see your daughter pursue? _____

   _____

8. Please rate the careers listed below according to what you think will be the Job Outlook in General and the group or groups for whom the job is suitable.

Careers	Job Outlook In General				Job Would Be Suitable For: (May Check One or More)			
	Poor	Fair	Good	Excellent	Women	Men	Men or Women	Your Daughter
Accountants								
Architects								
Actors/Actresses								
Anthropologists								
Airplane Pilots								
Bank Officers								
Chemists								
Computer Programmers								
Credit Managers								
Drafters								
Engineers								
Foresters								
Insurance Agents								
Lawyers								
Librarians								
Oceanographers								
Pharmacists								
Purchasing Agents								
Psychologists								
Physicists								
Physicians								
Registered Nurses								
Radio/TV Announcers								
Surveyors								
Statisticians								
Social Workers								
Sociologists								
School Teachers								
University Professors								

9. Please feel free to use the back of this page for any comments or suggestions you would like to make.

(APPENDIX C)

30 Great Falls Tribune Friday, October 27, 1978

Girls: here's an opportunity to expand career possibilities

A new project to acquaint Great Falls girls with career opportunities outside of traditionally female jobs has been funded with a $46,580 Health, Education and Welfare grant.

Girls traditionally have become teachers, nurses or secretaries because those were considered women's jobs. Through the project, the School District 1 career and vocational education department will try to help academically gifted girls at Great Falls and Charles M. Russell high schools become aware of other jobs open to them, according to Rich Wooden, consultant for career education.

For example in health careers, girls traditionally have thought about being nurses but not doctors.

"We want to avoid saying you have to do anything," Wooden said. "We want to work with people in the schools" to let girls know the choices they have for careers. Counseling on potential problems and conflicts women find in entering male-dominated careers and in combining family and career will be part of the project.

"There are many phases of a woman's life and they must plan for those phases," Wooden said. "People do more than one thing in their lives" and students should be aware of that, he said.

Career guidance materials currently in the schools will be examined and new materials added. Students and their parents also will be acquainted with the computerized guidance information system now in use in Great Falls public schools. That system allows students to call up information about required skills, training and hiring potential of any career on computer terminals in each high school. The "computer is non-sexist," Wooden pointed out.

As one of first undertakings in the project, 60 girls from the two high schools have been invited to attend the Creative Life Planning Workshop sponsored by the Junior League and YWCA Nov. 7. Of the girls invited, 47 have accepted, Wooden said. There also will be 29 school staff members who have contact with students at that workshop.

"This is a brand new project and still in the planning stages," but hopefully it will be integrated into the schools' guidance and counseling services to help all students, Wooden said. A goal is to help students stop thinking "what boys do and what girls do" in terms of careers.

Frances Jackson, supervisor of career and vocational education, wrote the project proposal. The grant is for one year with a provision allowing application for second-year continued funding.

Two other Montana projects have received career education grants, according to HEW's office of education. Montana State University received $86,052 and the National Center for Career Education in Missoula received $160,000.

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HILLEY & LORING
A Professional Corporation
Attorneys at Law

BENJAMIN W. HILLEY
EMILIE LORING
DAVID S. PAULL

1713 TENTH AVENUE SOUTH
GREAT FALLS, MONTANA 59405
TELEPHONE 406/761-3100

October 31, 1978

Rich Wooden, Consultant
Career Education
Administrative Offices
School District No. 1
1100 4th Street South
Great Falls, Montana 59405

Dear Mr. Wooden:

We were pleased to see that the School District has received a $46,000.00 H.E.W. grant to acquaint Great Falls girls with career opportunities outside of traditionally female jobs. There are currently four women attorneys in the City and we want you to know that any of us would be delighted to talk with either individual girls or groups of students about career opportunities in the legal field or law schools.

BARBARA BELL, Esq.
Dzivi, Conklin, Johnson & Nybo
Northwestern Bank Building
Phone - 453-5441

CAROLE DULANEY, Esq.
Swanberg, Koby, Swanberg & Matteuci
Montana Building
Phone - 452-6415

SANDRA WATTS, Esq.
Graybill, Ostrem, Warner & Crotty
First National Bank Building
Phone - 452-8566

EMILIE LORING, Esq.
1713 Tenth Avenue South
Phone - 761-3100

Please do not hesitate to call any one of us if we can be of any assistance in your new program.

Sincerely,

Emilie Loring

EL/sb
cc: Bell, Dulaney & Watts

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Values

How does a girl plan for her future when she is confronted with a baffling mixture of multiple roles, outdated stereotypes, the expectations of society, the attitudes of the family, and constantly changing realities? Sorting out possibilities and establishing priorities—in short, deciding upon values—is a complex process, and counseling can be of great help.

Values, whether articulated or largely unconscious, underlie the selection of patterns for education, marriage, work and career. But these selections do not take place in a vacuum. They take place in a setting, a context that is conditioned to a large extent by the human needs which must be met. Abraham Maslow's view of human beings as essentially "needing" creatures with a well-defined hierarchy of needs provides valuable insight. Until the most basic human needs are satisfied, no other needs can be made to seem important—"Man lives by bread alone when there is no bread." In the poorest families, girls often have very little real occupational choice. They must add to the income of the family as soon as possible; there is no money available for extra training, and no time to get it. It can be difficult for a girl to put her attention upon planning a course that leads to a satisfying job in the future if the present is uncertain and frightening. Those who work with girls to help them establish or become aware of their own values are sensitive to the realities of setting and to the human needs which must be met.

The highest need of all, the need for self-actualization, becoming all that one is capable of becoming, cannot be dealt with, according to Maslow, until a human being is fed, clothed, sheltered, safe, and assured of the affection of others and the esteem of self. Self-actualization presumes a degree of self knowledge that allows at least a glimpse of possibilities. How can a girl think it possible to become a doctor if she has no clear idea of her strong ability in the field of science? How can a girl think it reasonable to plan for a combination of marriage, motherhood, and a demanding professional career if she does not recognize her high level of energy and her capacity for organization? How can a girl think it realistic to design a life pattern around work as a data programmer without confidence in her aptitudes and skills? Self knowledge pre-dates the possibility of self actualization. Counselors can make concrete contributions to the store of a girl's awareness of her own abilities, strengths, and interests. Counseling can effectively clarify the needs to be met, and thereby assist in clarifying values.

Sandra and Daryl Bem, psychologists at Stanford University who are noted for their work on the social conditioning of girls and women, make thought-provoking suggestions about counseling.

There is a temptation for counselors to make two kinds of errors in the guidance of young girls: either they treat girls exactly like boys, without recognizing that the number of alternatives psychologically open to them must be drastically expanded; or they treat girls like future wives and mothers who must *"realistically"* plan for the discontinuity, compromise, and coordination necessary in a life of multiple roles. Perhaps it is time we recognized that men also play multiple roles. Perhaps it is time we worried a bit less about the girl's future role as wife and mother, and worried a bit more about the boy's future role as husband and father. Perhaps it is time we encouraged the young boy to think more about how he was going to coordinate *his* career with home and family.

Within the school setting, group guidance sessions in which both boys and girls participate will allow them to discuss topics such as those in the booklet on myths about girls and women included in this packet. These group sessions often produce thoughtful exchanges of views which lead individuals to re-evaluate and reshape their opinions. It is useful from time to time for boys and girls to be counseled together in groups to help them explore mutual problems and develop an awareness and appreciation of the other's viewpoint.

Girls need to develop a realistic attitude toward work. They would profit by observing people at work in all kinds of jobs. Counselors can create opportunities for girls to talk with women who can help them understand the process of planning for future employment. Also worthwhile are visits to the school by women with specific and concrete information about their unusual or interesting occupations; in this way counselors can effectively encourage girls to consider a wide range of occupational fields. Taped interviews and videotapes can bring other possible jobs to light. Discussions about the jobs that girls find desirable leads to consideration of the kind of education or training required. In Washington, D.C., a two-year pilot project is planned which will link inner-city girls at the junior high school level on a one-to-one basis with employed women. The aim is to expose the girls to vocational possibilities and encourage them to stay in school. About 300 girls will visit local offices and other job settings to see and hear about the working world in occupational fields of interest.

Good role models can have a tremendous impact upon adolescents and can play an important part

in raising girls' aspirations. To see a woman functioning well in a job makes that job seem a possible goal for the girls who are watching. Good role models can give reality to new roles, new options, new careers for women. They can provide answers for the most immediate questions girls will ask. How does one get a foothold on the career ladder for this particular field? What kind of preparation is needed? What are the stumbling blocks? What are the satisfactions?
Some suggestions on the use of role models:

1. People in the community who can be seen in person are of course of great value.
2. Female employees of the school or the school district are often a good resource.
3. A panel of women representing different life styles, i.e., married, unmarried, with and without children, etc., can make concrete some of the choices which shape lives.
4. Women who are interesting role models are presented in newspaper and magazine stories.
5. Good biographies can sometimes provide powerful role models for young people.

The Commission on the Status of Women has pointed out in its reports and recommendations the relationship between girls' vocational goal formation and the female role models presented in the state's textbooks. Content studies make clear that there are comparatively few female models, and those few are following the most traditional patterns only. Other studies corroborate the effect of curriculum materials upon the vocational choices of girls. Evidence that girls tend to express preferences for a career depicted by a female model, regardless of the career itself, gives support to the Commission's contention that the predominant use of male career models in California's state textbooks and in vocational materials can operate to limit the range of girls' vocational choices and aspirations. Unless the limitations of educational materials are counteracted by concerned counselors, teachers, parents, and other adults who have contact with young people, girls will tend to aspire only to careers from the limited range of so-called "feminine" occupations, or will aspire only to the role of housewife and mother despite the projection that far more than half of these girls will work full time for 25 years or more.

Δ55588C—886 6-73 5M

TEACHER SELF-CHECK LIST

"What are kids learning from me
that I don't know I'm teaching?"

IN THE CLASSROOM

1. Who participates more in your class - males or females? What kinds of participating do they do? Who asks questions? Who is responsive in discussions?
2. If you teach elective courses, are they predominantly of one sex? Why is this so?
3. What are your behavioral expectations for the girls in your class? What standards of achievement do you hold for them? Are these different from your expectations for boys? In what way?
4. For what behaviors do you punish or express disapproval? Are they different for males and females?
5. What behaviors do you reward? Are the standards different for males and females?
6. Do you have areas in your room (or do you design activities) that attract more of one sex than the other? How are they different?
7. Who does the heavy chores in your classroom? (carrying books, etc.) Who does the secretarial chores? (collecting papers, writing on the board, etc.) Do you consciously avoid assigning tasks on the basis of sex?
8. Are the examples you use in discussions mostly female or male? Do you categorize males and females as doing certain activities or having certain personality traits? Do you routinely use only male pronouns?
9. How do you feel about girls who aren't pretty? What about boys who aren't athletic? How do you feel about girls who are athletic? What kind of relationships do you have with students who don't fit the common stereotype?
10. Do you give verbal cues that express your feelings about "proper sex-role behavior?" Ex., "Girls should ...," "A real man wouldn't ...," "Big boys don't ..."
11. Do you refer to your students by their sex "boys and girls?" What alternatives can you think of?
12. If students choose seats, what patterns do you see? Do female students cluster around a male teacher or vice versa?
13. How do you respond to sexist (or racist) remarks made by students to each other or about a group? Do you use the term "women's libber" (rather than "feminist")? Do students in your classes treat the women's movement as a serious reform movement? Do students in your classes see the civil rights movement as a legitimate reform movement?

YOUR PERSONAL IMAGE

14. What kind of role modeling do you do? Do certain types of students seem to identify with you?
15. How would you describe - your dress, smile, verbal expression, body language, energy level, etc.?
16. What is your style of interaction with girls and with boys? With male teachers and with female teachers? With administrators?

Teachers:

One goal of the Career Education Program is to help female students (and in reality all students) to consider a wider variety of careers without being limited to some of the traditionally sex-stereotyped choices.

The attached check-list should help us, as professional educators, to consider what role we play or want to play in the sex role stereotyping of students.

Hopefully you will have the time to give this some thought. Please do not return the check-list.

Frances Jackson
Director, Career Education

(APPENDIX D continued)

What Can Schools Do To Enhance Participation and Achievement of Young Women in Mathematics and the Physical Sciences?

Paper delivered at the
American Association For the Advancement of Science

February 16, 1978

Patricia Lund Casserly

My paper reports on factors found in certain secondary schools that have been remarkably successful in attracting and holding young women in strong, sustained programs in mathematics, physics and chemistry. In this study which was funded by NSF, I observed Advanced Placement sequences (i.e., programs culminating in college level courses validated by national "final examinations grades and reported to the students' colleges of intended registration) in thirteen high schools from a broad range of geographic and socio-economic circumstances but alike in presenting at least twice the national ratio of girls to boys in at least one of these three fields and at least 5 girls in one or more of the others.

I used the College Board's Advanced Placement Program as my basic criterion for two different, yet tightly related reasons: In the first place by encouraging schools to offer the functional equivalents of first-year college courses in calculus, elementary physics, general chemistry and the like. The Program helps its 4000 participating schools open the possibility of professional careers in mathematics and the physical sciences to many young women, who, without this discovery of personal strength and interest while in school, might have settled softer, more lady-like options at college and in later life. I wanted to see how such strong and interested young women looked and felt and acted in the twelfth grade. (I also interviewed some recent graduates at their colleges by phone.)

In the second place, the establishment of such courses in the senior year of high school requires a tightening and sharpening of sequential

studies in the earlier grades--most typically the devotion of eighth grade mathematics to introducing algebra. Such curricula, designed--to repeat--to provide students with college-level course in the twelfth grade, therefore provided me with ready made opportunities to observe the explicit & implicit signals given to girls in middle school or junior high school concerning the wisdom and propriety and possibility of their engaging in the serious sequential study of such subjects.

A second, focused investigation of such effective junior-senior high school mathematics sequences, similarly defined, is presently funded by NIE, stimulated in part by the conclusions of the first. I do not expect its findings to differ in the main with those of the broader introductory study which I should like to discuss for a few minutes with you.

Quite the contrary: my initial findings in the second study corroborate strongly my earlier conclusions which can be set forth as follows:

One. Homogeneous grouping, so accurate, and deft that it seems natural to students, is critically important in a subject of sequentially developed skills like mathematics. Bright students in any grade are as unchallenged and hence observed by a mixed-ability classroom as regular students would be in a class for slow learners. This seems especially true of eighth and ninth-grade girls whose teachers and guidance counselors do not encourage the aggressive pursuit of "fast math" classes by young women. I'll expand on this latter point in a few minutes.

Two. AP courses in mathematics and the sciences do give girls excellent stimulation and preparation toward professional careers in these and related disciplines. Fully 80% of the girls I studied planned to continue in such fields. They were proceeding to college with the objective advantage of increased opportunities and with the subjective advantage of heightened interest and self-confidence. Indeed a third, unexpected benefit of th AP criterion I used was the presence it virtually guaranteed of strong, caring self-confident teachers in these fields whose egos could stand the double test of external examinations and of students brighter than themselves.

The often critical role of the AP teacher--not a self-appointed guru, but a practicing and caring professional in the field is the heart of my conclusion three: that AP teachers in mathematics, chemistry and physics, whatever their sex, are excellent agents for recruiting girls to these fields for study and for later careers. They fulfill their role in two ways: explicitly by treating such prospective paths as lively possibilities for young women and implicitly by setting as high goals for girls in these subjects by not letting them slide by on "niceness" nor on tears but rather treating them as the able people and future adults they really are. As early as in junior high school--indeed, especially then--girls are alertly sensitive to several stereotyping. Their perceptions of the views of others in the school, family and community in this respect are astonishingly sharp and strong.

This observation leads, in turn to my conclusion four: that older girls along with the strong caring teachers I discussed before, are often

effective agents of encouragement and support. This help seems particularly important during two critical periods in the girls school years when some adult's assumptions can withhold support from able, ambitious girls. The first such period is the early junior high school when the choice is made whether to take algebra or a simpler math course in the eighth grade. The second is in the senior high school years when the choice is made between AP and less demanding elective courses. At both these decision points the active participation of older girls was peculiarly effective. They had opted for rigor and had lived--indeed they loved--to tell the tale.

On quite the other hand, and this is my conclusion five, many guidance counselors--again, whatever the sex--are poor sources of encouragement for girls interested, let alone potentially interested, in mathematics and the sciences. Female counselors seem to project their own anxities and ignorance based on the limited horizons of their growth while male counselors at best fear lest able, ambitious science--oriented women take away men's jobs. At the worst they reject the possibility or propriety of the girls even getting that far and urge them to "avoid discouragement or possible failure" by "enjoying life" in greener, softer fields.

My conclusion six, to tie things up in a convenient hexagon, is that some other superficially attractive, tactics are not necessary, and often do not work. A school's science curriculum need not be emcyclopedic in order to be effective; those that require students to study "high school" biology, chemistry and physics before entering an AP science course seemed to be discouraging more students--especially girls--than they served. As one of

them put it "A lot of guys tend to be interested in science per se... I happen to like chemistry but I hate dissecting and figuring out trajectories bores me." This is not to argue that enthusiasm can replace instruction, but rather to point out that an almost equal number of schools had less rigid science curricula. They seemed to attract more girls and serve them equally well.

Similarly, teachers and guidance counselors, like parents, do not have to have been females to be helpful to girls in this respect. Indeed, women with discouraging attitudes can be particularly harmful. What each of these girls needed, apart from appropriate information and education, was an informed and caring older person with confidence in the girl and practical knowledge both of the field and its related careers. Such a person, whether parent, counselor, teacher, male or female could help her put discouraging remarks and events in some perspective; could identify with her frustration at being a novice in a complex field; and could support her educational goals, however, temporary and non-specific they might be. This triple agent--trusted older friend, respected mentor and informed, assertive counselor--is valuable in the liberating education of any adolescent. For American girls in mathematics and the sciences it can be critical because studies in science do not relate as easily and obviously to marriage and parenthood for them as they do for boys. Quite the contrary, the strong career implications of those studies which have long attracted boys, to whom study, career, and marriage seem conjunctive activities,

operate quite differently with girls, who find it a bit more difficult to imagine themselves ten years from now coming home from the lab to a home-making spouse and the baby. But the pursuit of this broader social question would take us beyond my studies and beyond my report to you today, save to point out that--some sort of androgynization of household roles is very much on the minds of the girls I have been seeing and only beginning to dawn on those who shape their schooling. In nineteeth-century Britain Latin was taught in the guise of Caesar and Cicero to young men who were going to defend and administer England. Today, American classicists are structuring less imperial Latin programs. It is not yet clear what shape mathematics and the sciences will take for bright American high school girls tomorrow. I believe, however, that I have begun to identify some significant dimension of successful change.

Factors Leading to Success - Present and Future

Women and Mathematics Stand - Where From Here

National Council of Teachers of Mathematics

April 14, 1978

Patricia Lund Casserly

It's a heady thing indeed to be given an opportunity to make suggestions in public for other people's future actions. The temptation is strong to assume the solution--to sketch out a utopian program--and to leave the task and implementation to others. But I come to you not as a teacher or a counselor--nor as an administrator--but as a researcher, one who studies the actions and effects of others.

Thus, I cannot claim the experience that flows from the excercise of a responsible post on any of the firing lines of contemporary education, whether in the classroom, the school office or the board room. Yet the vantage point of the researcher has its advantages, too. Few teachers have the opportunities to watch their colleagues at work, let alone to visit other schools in other systems. My work, on the other hand, takes me to many classrooms, serving many kinds of young people, in a rich variety of curricular arrangements in an equal range of circumstances spread across our country. To my constant astonishment, I find in these travels teachers and administrators remarkably ignorant of how curricula and other school practices <u>do</u> differ across this country and, thus, of how different things could be in specific schools if people wished to make them so.

So perhaps I can be helpful here by basing my remarks on actions and attitudes I have actually witnessed in real-life schools, and by making suggestions for the improvement, at other, equally real institutions, in the relationship between women and mathematics. In doing so, I intend to forswear utopian dreams and to confine myself to those things I know are possible, for I have seen them all at work.

The two most recent studies from which my suggestions derive are easy to describe and lead directly to a discussion of my suggestions. The first, supported by the National Science Foundation and the College Board, was based on the observation that preparation for professional careers in mathematics and the physical sciences is, on the whole, open only to those college students who pursued the sustained study of these subjects in secondary school. In it I sought to identify and analyze characteristics of certain secondary schools that have been remarkably successful in attracting and holding yougn women in strong, sustained programs in mathematics, physics and chemistry. The study examined the curriculum, guidance policies, and student cultures of thirteen high schools in order to identify those factors that might encourage female participation in advanced high school science and mathematics programs--and to identify those that discourage it.

The second, which is presently being carried out thanks to NIE, is a more focused longitudinal investigation of junior and senior high school mathematics programs emphasizing the identification of attitudinal factors which affect persistence in mathematical study by girls with high ability. Attitudes to be investigated include those of male and female teachers and counselors and those of boys and girls in Advanced Placement mathematics courses. So far, its findings strengthen and enhance findings of the broader study so that the suggestions I should like to share with you today are based on my observations in both these projects.

For the purpose of this paper I'm going to define "success" as "arriving at college with enough mathematics under the belt to step into the full range of college majors without having to clutter up one's freshman year with mathematics courses the college considers remedial." So for most students I'm talking about four years of college preparatory math. But more and more I'm talking about 5 years of math. That is, sending the girl off to college with a solid introduction to the calculus. My experience is in schools that do just this and do it very well indeed. But the things I have to say about school-related factors that lead to success could apply just as well to schools that do not yeat participate in the AP program nor offer their students the calculus.

In order to have a popular, effective calculus class in 12th grade (and let me say that many students study it even a year or two earlier), the school's administration will already have employed a number of tactics designed to encourage girls to stick to the full secondary mathematics curriculum whether it is a four or a five year program.

Homogeneous grouping, so accurate and deft that it seems natural to students, is critically important in a subject of sequentially developed skills like mathematics. Bright students in any grade are as unchallenged and hence ill-served by a mixed-ability classroom as regular students would be in a class for slow learners.

The earlier the homogeneous grouping takes place in elementary school, the better it is for girls on the fast track for social as well as academic reasons. It's earlier all around if acceleration is an accomplished fact well before sexual self-consciousness and sexual stereotyping are issues--either among peers or among well-meaning counselors. I'll expand on this latter point in a few minutes.

If a girl is persuaded or decides to drop off the track for a year, and many do, there must be a way to climb aboard again. The schools that I've studied make that very provision. They allow and even encourage students to take two math courses concurrently during a single school year. Several have summer sessions but, instead of these sessions being primarily or even exclusively for remediation or catching up, they are regarded principally as ways for strong students to accelerate their programs.

Although young women are usually thought of as being several steps ahead of young men in various kinds of maturity, they, like their brothers, often have no fixed idea at grades 8, 9, and 10 in what direction they will go. We are all aware of the phenomenon of the young man "suddenly getting it all together" in grade 11. The problem is that during this time when things are "not together," girls--but not boys-- are allowed to drop math since they're getting B's or C's which "aren't too good for the cumulative average" (from the counselor's point of view) or they're "probably going to end up in the social sciences." (And what a fallacy it is that you don't need

mathematics for them!) On the other hand, boys take mathematics all along since "they'll probably need it" in the careers that they, their parents, friends and counselors assume they will have. Yet in these same years girls are trying to arrange these same hopes in the more complex context of marriage and children. At the least, they deserve supportive advice that they not sell their futures short.

In the middle elementary school years (and indeed throughout the school) teachers should be aware of other all too prevalent "kindnesses" that are extremely destructive to girls, and are therefore traps thwarting achievement. The first is the "aura-of-the-good-student" trap. Many parents are made aware of this during parent-teacher conferences. The teacher talks about the girl's fine record, how bright and perceptive she is, how well adjusted and how nice to have in class! The parent counters, "Yes, but she can't multiply. Or divide", or "Manipulating fractions doesn't come easily." And the teacher counters, "Oh, but she's so nice and bright, she really won't have any trouble in school." What the teacher often means is "The girl won't <u>be</u> any trouble." But trouble she will have as will any normal or bright boy who doesn't have his arithmetic skills down cold. I hope that the renewed emphasis on back to basics and the demise of the social pass will help teachers to be <u>really kind by being really firm</u> in insisting that <u>no</u> student slide by him or her without mastery of appropriate arithmetic skills. In high school mathematics it is often the arithmetic skills that hold a student back--causing her to take too long to solve equations whe well understands. If you're slow and/or hung up on mathematics,

of course you will get behind and there's nothing that causes greater anxiety in many of us. This is a great time for a girl to break into tears. Now I'm not suggesting that this is a ploy for sympathy on the girl's part, alothough it may be in rare instances. It's just that girls are more likely to respond to frustration with tears than boys are. The important thing here, is for the teacher NOT to fall into the "tear trap." Don't respond to the tears, respond to the frustration behind them and try to work the problem through calmly. A number of girls have told me that the supportive calmness of a teacher had saved them from wanting to give up entirely. If the teacher reacts with undue solicitude the girl is apt to receive the message, "My teacher's sorry for me or excuses me because I really dan't do this and I cry. Women cry and they really aren't good in math." Nonsense. Women do cry occasionally, even gifted ones, and the can do mathematics even through tears, but not if the tears fluster those around them or cause mentors to withdraw in embarrassment. Male teachers and counselors who wish to be truly supportive, take note.

And here, perhaps is the place to make a comment or two about women and mathematics anxiety. I'm sure that mathematics anxiety exists, but my research in schools with strong mathematics programs and dedicated, caring teachers does not support the hypothesis that it is more prevalent among girls than boys. And I'm rather sorry that math anxiety has become such a popular slogan for educators and others to bandy abount in professional circles and in the media, because it's often used to conveniently

lump together all sorts of phenomena associated with learning mathematics or not learning mathematics that aren't manifestations of anxiety at all, at least not at first.

The situation is rather like popular medical writers' recent preoccupation with hypoglycemia as either cause or effect (it was difficult to tell which) of all sorts of pathological living patterns. I think we have to be a lot more scrupulous in our thinking about the relationships of women to mathematics and vice versa. "Math anxiety," like "low blood sugar," is one more faddish, ambiguous term which, sounding insightful and portentious, dissolves upon inspection into a bit of cause, a bit of effect, and much preoccupation on the speaker's part. If we are to use the term, we must surely do so with care, lest it inhibit, rather than enrich and enlighten, our thought.

In the schools of my study, the place I found true mathematics anxiety was not among students but among teachers and guidance counselors. To me this means that mathematics teachers, instead of decrying the products of the lower grades and the advice handed out by counselors, are going to have to take responsibility for the encouragement, retention, and proper placement of young women in the math curriculum. And math teachers are going to have to be responsible for the education of their peers to the importance of mathematics for <u>all</u> students in the world of the seventies and beyond. Let me emphasize this point again in a way that may help to rearrange your thinking or that of someone else with whom you are dealing in your school.

We don't let students drop English because they have trouble spelling, nore because their grammer is imperfect, nor because they don't enjoy the selected literature. Let's not do it in mathematics either. I know the study of one is generally required by law. But there can be a climate for mathematics as there is for English. I've seen it.

Then too, sometimes schools seem to have a good policy for a bad reason. That is, they require that the college-bound student study mathematics at least through the junior year since "students do best on the SAT's if they are studying mathematics concurrently." That's true, but I hate to think that doing well on that test is the only reason some students hear from their counselors for persevering in the mathematics sequence. But such a policy does get a remarkable number of girls "over the hump" who then go on to take the fourth or fifth year. By then, mathematics has become a habit and as the transition to college becomes more imminent, a close reading of catalogues often increases awareness of its usefulness in a wide spectrum of undergraduate fields.

I encourage you and your colleagues to begin to think in terms of a "report card" for your school--particularly your high school. Look at students' mathematics ability by sex in grade 7 or 8 or 9--and in the years thereafter work to see that appropriate proportions of these girs--and boys--succeed in your various mathematics sequences or courses. If they don't, make it the business of yourselves, your principals, and your counselors to find out why.

If there are less than representative proportions of girls in upper level mathematics course, your school is not providing <u>appropriate</u> basic

education to that segment of its population. We have rarely thought in terms like these but let's begin. Can counselling be improved? You'll probably have to do it! Do the girls need more realistic information on the necessity of mathematics background in a wide spectrum of college majors and careers? You'll have to be the source of that as well. And what about your own attitudes?

Because time is short and I do want to finish, just let me list some other characteristics of mathematics teachers in the schools that are successful in providing appropriate mathematics education for many of their young women as well as for their young men:

1. They use older girls to counsel, encourage and tutor younger girls. An older girl in the advanced math course, several years ahead in school, or in college, is often easier for these girls to relate to then a middle-aged "role model" who comes to the school one day to tell young women what it's like to be a "lady engineer" or whatever. I am not belittling the importance for young women of such visitors to the school. I am trying to point out that they are most effective when they are seen as port of a continuum of commitment. Girls, particularly from working class or non-professional middle-class families, want and need to know how one gets from here to there. One girl, on her way to MIT next year, put it this way: "Reading about Marie Curie or other famous women scientists always left me sort of cold. You know, how many men or women win the Nobel Prize? They're impossible for me to identify with. But when a friend of my sister's (a senior in college) cam back to school to tell us about what an engineering program was like and some of her experiences in it . . . !"

full spectrum of curricular choices once they reach college. However, if you adopt some of them in your schools, perhaps when Lucy Sells looks again at the options open to students entering colleges and universities she will not find the horrendous disparity between viable options for young women and young men that she did a few years ago.

(APPENDIX E)

Career Scene

career education "an informed career choice"

Great Falls Public Schools Career Education Department No. 1 - April 1979

This career information newsletter is directed at girls. Why girls? Because nine out of ten girls now in high school will work for pay at some time during their lives. Six out of ten will work for pay for thirty years during their lives, and four out of ten will eventually head a household.

But. . . . women working full time earn an average of $5,000 less than men. This is partly because most women work in clerical and service jobs which are generally lower paying. Even those women who enter professional-technical occupations are usually concentrated in lower paying occupations such as teaching and nursing instead of traditional male jobs such as lawyers and doctors.

So why a career information newsletter for girls? So that by having more information about the variety of careers available, how much they pay, and what training is required, girls will be able to select careers that are interesting and rewarding.

Guidance Information System

If you haven't taken a turn on the computer terminal and asked the GIS (Guidance Information System) to match you up with a career or help select a college or find financial aid, you should. Anyone can learn to use the computer and every junior high and senior high has a terminal in the library and the guidance office. Someone there can help you. Ask for the GIS.

'79 College Grads

This year's college graduates will find more jobs and higher starting salaries, according to Northwestern University's 1979 Endicott Report. Some 156 of the nation's largest employers of college graduates say they plan to hire about 18% more graduates with bachelor's degrees and 11% more with master's degrees than they did in 1978. In greatest demand will be graduates in engineering, accounting, business administration, computer science, liberal arts and sales. Starting salaries will be 4% to 8% higher than last year, with engineering commanding the highest amount--an average $1,524 a month compared to liberal arts at the bottom with $1,062 a month. About 57% say inflation has not affected their recruiting of new graduates. Almost three-fourths say their need for students with bachelor's degrees has increased, and 58% say they need more with master's degrees. Many said, however, that inflation of starting salaries may adversely affect business by forcing reductions or pricing new graduates out of reach of some companies.

Job Prospects For The 80s

The Kiplinger Washington editors are new preparing a report that will highlight a projected labor market for the 80s. A small sampling of their prognostications reveal that health specialists, energy, mining and metal engineers, scientists, computer technicians, analysts, mechanics and people who can fix machines will be in sizzling hot demand.

Teachers, bookkeepers, lawyers, architects, mathematicians, aerospace engineers and chemists, they say will find a dawdling market.

And, jobs with no growth will be compositors, file clerks, maids, railroad hands, keypunch operators and textile and tobacco manufacturers. (*The Kiplinger Washington Letter, April 21, 1978*)

(APPENDIX F)

Great Falls Public Schools
Great Falls, Montana

March 21, 1979

Kim A. Powers, CETA/YETP and
Career Education Consultant
Room 229, State House
3833 N. Meridian Street
Indianapolis, Indiana 46204

Dear Kim Powers:

Thank you for your interest in our career education program, "Career Guidance for the Academically Gifted Female Students." The subtitle for our program is "A Coordination of Resources to Develop Human Potential", and essentially that is what we are trying to do . . . coordinate already existing resources.

We are working with the Montana Office of Public Instruction to provide awareness sessions for our school staff members and counselors to reduce sex bias and sex stereotyping in career choice. We are trying to make both teachers and students more aware of the materials that exist in the career information centers that exist in each of our buildings. We are providing opportunities for students and their parents to utilize the Time Share Company's computerized Guidance Information System.

We have identified programs that exist in our community that aim at the career development - human potential development of girls and women; and we have worked on bringing all or parts of these programs to our students or taking the students to the program. Two such programs in our community are: The Creative Life Planning Seminar/Career Development Program developed by Alene H. Moris, The Individual Development Center, 1020 East John, Seattle, WA 98102. This program is, in our community, being conducted by the Junior League of Great Falls. The Girls Scouts of America also have an excellent career program called Dreams to Reality. This program is also available to the schools without students having to join the Girl Scouts.

We are working with community organizations such as the Women's Resource Center, the Community Resource Center, Zonta International, and Malmstrom Air Force Base to identify women working in non-traditional career areas and provide opportunities for students and these "role models" to interact in and out of school.

We have examined a wide variety of books and audio-visual materials in an attempt to upgrade the offerings in our career information centers. We have placed the Fascinating World of Work Series (filmstrip/cassette) by the National Career Consultants, Inc. in our media center and have had good response to it. Of the printed materials we have examined we are still deciding which to purchase for all our career information centers.

As I think you can see from the above, we really have not been developing materials and so we have a difficult time responding to requests for sample products. We are sending a "career information newsletter" into the homes of our gifted female students and I am enclosing a copy.

I hope some of the activities and programs I have mentioned will be helpful to you. If I can be of additional assistance, please do not hesitate to contact me.

Sincerely,

Richard Wooden, Consultant
Career Education Department

RW/pm

Encls.

APPENDIX B

Career Scene

career education "an informed career choice"

Great Falls Public Schools Career Education Department No. 1 - April 1979

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Career Scene
career education "an informed career choice"

Great Falls Public Schools Career Education Department No. 2 - May 1979

CONGRATULATIONS SENIORS!

Congratulations and best wishes for the future. We want you to know that even after you've graduated, the public schools of Great Falls are ready to support and help you with your plans and decisions. Don't hesitate to return to use the career information, the Guidance Information System Computer Terminal, or seek ideas and suggestions from counselors and teachers.

ENROLL NOW FOR NEXT YEAR'S EXECUTIVE INTERNSHIPS

Juniors. . .would you like to spend two hours a day on an out-of-school career exploration experience? If you would, then you should consider the Executive Experience Internship program which is open to seniors at both Great Falls high schools.

The Internship program allows you to spend a semester working, observing and talking with a person who is employed in your career interest area. You will spend two hours a day, four days a week with your sponsor and meet with the other interns in a seminar for one hour on the fifth day.

The Executive Experience Internship offers a unique educational opportunity not ordinarily available to young people. Because the internship is a learning experience, students will receive one-half an elective credit but are not paid for the time spent with their sponsor.

If you are interested in this program, see Mr. Schlameus at Great Falls High School or Dr. Stenson at Charles M. Russell High School for program application blanks and additional information. You may also call Jim Carlson, the program coordinator, at 791-2185.

WHAT ABOUT PROFESSIONAL SCHOOL TRAINING?

• Doctors and nurses will be in demand as usual, although one expert predicted an eventual oversupply. Still, there are many areas in which these professionals will continue to be sorely needed--in poorer rural areas, for example.

• The number of dentists is closer to an oversupply, according to some sources. Still, the Department of Labor projects an "average" (15 to 24.9%) growth rate in this field.

Geographic areas will probably determine the greatest need. If prepaid dental plans become popular the demand for dentists may increase.

• Law schools are turning out graduates in record numbers, and the job competition is stiff. Only the top grads from the most prestigious schools will have a good shot at jobs with good law firms. Demand for lawyers will vary. Small towns are the best bets.

Law school graduates will be able to apply their training to various fields, however. Some graduates will find jobs in industry, not as lawyers, but in law-related capacities. Students with a law degree also should consider adding another degree, such as a Masters in Business Administration or an M.A. in urban/regional/environmental planning.

• A resurgence is beginning in architecture, with opportunities emerging in industrial development, real estate, environmental and computer architecture. Many of the jobs will be snapped up by people with experience, but some firms will hire less experienced people, at lower wages to be trained on the job by seasoned staffers.

• Social work and psychology are two professions in which serious demand for workers will depend to a great extent on federal funding and federal programs. It's important to realize that the direction of federal funding can change drastically from year to year or administration to administration.

• Education has offered fewer opportunities recently than in the past, and the market will continue to be tight. As with other overcrowded fields, it's important to explore the options: Special education, for example, will present some jobs, depending upon where government funding is targeted. (*Better Homes and Gardens, September, 1978*)

Career Scene
career education "an informed career choice"

Great Falls Public Schools Career Education Department No. 3 - July 1979

A PLETHORA OF Ph.D'S

Oil reserves might be shrinking, but the nation's stockpile of Ph.D's is swelling like a balloon hooked to a leaky faucet. And the tap is still open, according to BLS.

As many as 40 percent of those who earn doctorates from 1976 to 1985 might need to seek jobs not traditionally held by Ph.D's if current trends continue.

But engineers are exceptions. They might be in short supply. And the surplus of chemists might be little more than 11 percent. In three fields -- arts and humanities; education; and business and commerce -- the oversupply could exceed 60 percent.

Source: D. Braddock, "The Oversupply of Ph.D's," Monthly Labor Review, October, 1978.

OCCUPATIONAL OUTLOOK HANDBOOK

Anyone planning to be an astronomer or a blacksmith should be warned: There will be only a handful of vacancies over the next seven years.

But if you want to be a secretary or work in a retail store, your chances are much better.

For young people planning a career, a new survey by the Bureau of Labor Statistics may help them make the right decision.

The survey, published as The Occupational Outlook Handbook, shows fast-growth areas such as computers, medicine, environmental work and clerical jobs.

But it shows a slow-down in the rate of vacancies for such jobs as photographers, newspaper reporters, teachers, historians, and sociologists.

The study shows that America will find jobs for another 42.8 million workers by 1985.

But the growth will be uneven, with technological advances slowing the demand for many occupations.

For showbiz hopefuls there is bleak news - only 600 vacancies will arise for actors each year to 1985, and 500 for dancers. The news for would-be singers is slightly better - 1,200 a year will be needed.

An extra 400 sailors will be needed and another 15,400 long distance truck drivers.

The computer industry offers good prospects with more than 5,000 programmers, systems analysts, operators and data machine repairers needed each year.

More than 83,000 registered nurses will be needed in each of the years to 1985, and a similar number of nurses' aides and orderlies.

A staggering 295,000 secretaries/stenographers will be taken on in the seven years ahead, and 155,000 retail store salesworkers. More than 160,000 building custodians will be needed in each year; 95,000 bookkeepers and 92,000 cashiers.

40 astronomers will find jobs each year and only 60 electrotypers and stereotypers will find jobs in the printing industry. And there will be only 100 vacancies a year for budding blacksmiths.

The Occuptional Outlook Handbook makes interesting reading and is available at school and public libraries.

REALTOR BROKERS MEDIAN INCOME CLIMBS

A study by the National Association of Realtors reports that brokers median income has climbed to $28,000 annually from $24,000 three years ago -- a 17 percent jump. The increase for sales represetatives was nearly 20 percent-to $14,300, from $12,000. Male brokers reported substantially higher incomes than females -- $30,000, compared with $19,500. Among sales associates, men registered a median income of $17,000, compared with $12,000 for women. (*The Wall Street Journal, September 26, 1978*)

Career Scene — career education — "an informed career choice"

Great Falls Public Schools | Career Education Department | No. 4 - September

Because more jobs are open to women today, women no longer need to feel channeled into "women's work". Women as well as men, may match their abilities, interests, and skills to a variety of career opportunities and receive training that will prepare them for a future with widely expanded horizons--and better than average salaries.

Of course, with all the talk about careers and salaries, young women may forget that they can also choose to be a homemaker and be proud of that choice.

Because many women do work at some time during their life, it is important to consider that occupations are available to women. The following occupations are open to both men and women. However, since most of these have not been areas in which many women have been employed, they should hold particular promise of today's women.

ACCOUNTING

Who's Hiring Where? The best opportunities for women beginning a career are with big accounting firms, where women can gain a wide range of experience. However, many women feel that the advancement may better in smaller firms.

How To Prepare: For jobs in large public accounting and business firms, a bachelor's degree in accounting or in a closely related field is suggested. Career advancement opportunities increase for thos with the Certified Public Accountant (CPA) certificate, achieved after passing a rigorous four-part, state-administered test.

BANKING

Who's Hiring Where? Commercial banks, investment banks, and savings and loan associations provide jobs in a wide variety of areas: Brank Managers, Cashiers, Credit Analysts, Customer Service Representatives, International Officers, Loan Officers, and Trust Officers.

How To Prepare: Best preparation for employment as a bank officer, manager, or for a management trainee position is a college background in business management, economics, accounting, finance, statistics, or a Master's in Business Administration (MBA degree).

COMPUTER FIELDS

Who's Hiring Where? The industries employing the greatest number of computer personnel are: business services, machinery manufacturing, government, and insurance agencies. Geographically, the greatest number of opportunities exists in metropolitan areas.

How To Prepare: Educational requirements vary. Jobs as entry-level programmers, operators, and keypunchers require a high school education coupled with some additional technical training. High-level jobs demand college and graduate degrees and strong math backgrounds.

CONSTRUCTION

Who's Hiring Where? The construction industry employs the largest group of skilled tradesworkers in the nation. Job openings may vary according to seasons from year to year.

(Over)

CONSTRUCTION (continued)

How To Prepare: Training through a formalized apprenticeship program is necessary for employment in construction occupations because of union regulations. Once accepted, a woman will undergo two to five years of combined on-the-job and classroom training before reaching the status of a journeyworker and finally a master. Skilled construction workers may belong to a union or may be self-employed, working on non-union jobs.

ENGINEERING

Who's Hiring Where? The industries where engineers are most in demand include: Energy production, and Federal Government

How To Prepare: A bachelor's degree in engineering or in one of the physical sciences is adequate preparation for an engineering career. A woman with a bachelor's degree in engineering commands a high salary and often can pick and choose from job offers. In fact, engineering is the only field in which average starting salaries for women are higher than those for men.

ENGINEERING AND SCIENCE TECHNOLOGY

Who's Hiring Where? Science technicians are employed in areas such as electrical equipment, chemicals, and aerospace and machine work.

How To Prepare: Best job opportunities will be for grads of post-secondary school technician-training programs offered by technical institutes, junior and community colleges, and area vocational-technical schools. Also, degress in engineering or industrial technology can be obtained from two- and four-year colleges.

HEALTH SERVICES

Who's Hiring Where? The major centers of employment for health-care workers are hospitals, nursing homes, community health departments, schools, mental health centers, rehabilitation centers and doctor's offices.

HEALTH SERVICES (continued)

How To Prepare: Health-care administrators and health professionals (dentists, physicians, veterinarians, optometrists, pharmacists) require two to six years of post-college specialized schooling. Minimum preparation for nursing fields ranges from two-year associate degree to bachelor's degree plus specialized course work.

INSURANCE

Who's Hiring Where? Major job categories are: Actuaries measure insurance risks, determine premiums, compute and analyze statistical studies to investigate and evaluate the risks their insurance companies will take; claim representatives investigate claims, negotiate settlements, and authorize company payments. Agents and brokers sell policies.

How To Prepare: Actuaries need a bachelor's degree with a major in math or statistics. Underwriters usually have degrees in liberal arts or business administration. Claims representatives may have a degree in almost any field, but may be hired without college training. College is preferred for agents and brokers, but is not necessary.

LAW

Who's Hiring Where? Approximately half of lawyers work in private firms. Others work for government agencies or in the legal departments of large corporations. Lawyers also work in business, manufacturing, banking and insurance. Many lawyers also are in public service agencies or they teach in law schools, and colleges.

How To Prepare: In college, no specific course of study is prescribed for preparation for law school, although a combination of economics and government is often recommended. The lawyer must pass the state bar examination in order to practice in that state.

(Continued on page 3.)

MANAGEMENT AND ADMINISTRATION

Who's Hiring Where? Jobs in management and administration exist throughout business, industry, education, and government.

How To Prepare: For a career as a manager/administrator, business courses such as accounting, business administration, economics and finance provide excellent preparation. Many women find a master's degree almost necessary. Universities and colleges offer a variety of management degrees.

SALES

Who's Hiring Where? Currently, the number of women in these sales areas ranges from almost zero (auto sales) to about 13 percent (insurance).

How To Prepare: Educational requirements vary with the type of sales job. Most firms offer on-job training. Some other industries prefer degreed applications. Technical training and business courses are good preparation for a sales career.

ENVIRONMENTAL SCIENCE

Who's Hiring Where? Most environmental scientists work for private industry, for oil and gas producers, for the federal government and in teaching. The environmental science fields with best projected job growth through 1985 are: geologists, geophysicists, and soil scientists.

How To Prepare: Preparation for college should include an emphasis on the physical and life sciences and mathematics. Plan on graduate work towards a Ph.D., with a college major in an environmental or related science.

STOCKBROKER

Who's Hiring Where? Most stockbrokers work for brokerage firms with headquarters in lar cities and branch offices in smaller cities.

How To Prepare: To become a stockbroker, a college degree in business of economics, or experience in finance or sales is most helpful. The key to becoming a stockbroker, however, lies in being hired into a training program. Major brokerage firms have their own training programs.

APPENDIX C

GREAT FALLS PUBLIC SCHOOLS
1100 FOURTH STREET SOUTH P. O. BOX 2428
GREAT FALLS, MONTANA 59403

Dear Parent:

The Career Education Department of the Great Falls Public Schools has been concerned that some of the special career and life planning needs of academically outstanding girls need more emphasis. Because of her high grade-point average, your daughter has been identified as an academically outstanding student.

If your daughter is interested, and with your permission, we would like to invite her to the Creative Life Planning Workshop as a means of helping her prepare for the future.

The Career Education Program will pay the registration-lunch cost and will provide bus transportation from the school to the Heritage Inn and back to the school. Students who wish to attend the workshop will be expected to remain for the full day program.

If your daughter wishes to attend the workshop, please tear off and sign the bottom portion of this letter and have her return it to the Dean of Girls at her high school.

If you have any questions please call Frances Jackson or Richard Wooden at the Career Education Office, 791-2185.

Sincerely,

Richard E. Wooden
Career Education Consultant

RETURN TO DEAN OF GIRLS BEFORE
FRIDAY, OCTOBER 20, 1978

I give my permission for my daughter to attend the Creative Life Planning Workshop at the Heritage Inn on November 7, 1978.

_____ _____

Daughter's Name Parent's Signature

Dear Student:

We are pleased to learn that you are planning to attend the Creative Life Planning Seminar on November 7. We hope the seminar will be helpful for you as you consider your future.

The Career Education program is continuously planning and developing programs to provide students with information and experiences that will help them as they consider their plans for after high school. At the present time we are working on plans to give more help to young women who have achieved high academic standing while in school.

We would like to have your help as we try to learn what career information and experiences have be available to outstanding female students and what thing have influenced their career choices.

It would be helpful to us if you would take the time to complete the enclosed questionnaire. We would like you to return it to the Dean of Girls at your school before November 7.

Sometime after the Creative Life Planning Seminar, we will contact you again for your evaluation of the seminar and it's potential value for other students.

We will sincerely appreciate the help you can give us. If you have any questions about the survey form don't hesitate to call me at 791-2185 or extension 185 if you're calling from a school phone.

Sincerely,

Richard E. Wooden

CREATIVE LIFE PLANNING WORKSHOP

On November 7th, the Junior League of Great Falls, assisted by the Young Women's Christian Association, the Career and Vocational Education Department of Great Falls Public Schools and the College of Great Falls will sponsor an all-day Creative Life Planning workshop. The seminar, held at the Heritage Inn, will be conducted by Alene Moris who is a noted counselor and author in the field of career counseling and self discovery.

Alene Moris is co-founder and director of the Individual Development Center, Incorporated in Seattle. The "I.D." Center is a counseling service for adults who are facing career and personal decisions and has served over 8,000 people through individual counseling, workshops and seminars since 1972. A sample of those Mrs. Moris has worked with are: Women Religious of the Roman Catholic Church, National Association of Bank Women, Weyerhauser Company, Association of Junior Leagues and a wide variety of other groups.

She has keen insight when analyzing the needs of both men and women and has a sensible approach as to satisfying those needs. Mrs. Moris writes: "One useful concept might be to think of a life-time in rough thirds: one third of our life-energies and not more than a third invested in relationships; one third of these energies into simply growing and 'becoming' a mature human being; and the remaining third invested in something I call a 'lifework': the something you do with your unique set of talents and assets." Mrs. Moris' stress is on setting goals, creative life planning, focusing on a certain area of interest and developing this interest through reading, study, in-service training and volunteer work.

This seminar is designed to encourage women to take responsibility for their lives, to recognize and value their various life stages, and to plan for appropriate, productive work in each of these stages.

Alene Moris is an exciting, dynamic lady and those who attend her workshop will come away with the tools to better organize and shape their lives.

The workshop will be held from 9:00 a.m. to 3:00 p.m. at the Heritage Inn on Tuesday, November 7th. Registration is in advance and is $7.50 including lunch. A registration form will be sent to you and is available at the YWCA. For furthur information about this interesting, thought provoking workshop contact:

Nancy Munderloh	Dixie Whipple	Myrna Johnson	YWCA
761-3193	761-7193	761-2774	452-1315